

Enabling Technologies: Artificial Intelligence Edge Processor Architectures

IDC's *Enabling Technologies: Artificial Intelligence Edge Processor Architectures* service provides the analysis, insights, and context that technology providers, system OEMs, and end customers need to understand edge infrastructure and endpoint artificial intelligence (AI) processing technology, use cases, vendors, and future road maps. Topics explored include AI use cases in the industrial market such as autonomous systems, robotics, advanced manufacturing solutions, video surveillance, and drones. In the consumer market, AI use cases discussed include gaming, virtual digital assistants, augmented and virtual reality (AR/VR), and smart home. AI will also be explored in the automotive and transportation market as advanced driver assistance systems (ADAS), infotainment, and autonomous driving features increasingly utilize AI. IDC's *Enabling Technologies: Artificial Intelligence Edge Processor Architectures* service will help to map the competitive landscape of major suppliers to understand the varying technological choices in the market as well as new and innovative use cases for edge infrastructure and endpoint AI. The service also explores the latest in AI research that could potentially impact processors including topics such as innovations in algorithm optimization, large language models, the role of memory, and other emerging topics.

MARKETS AND SUBJECTS ANALYZED

- AI processing semiconductors — MPUs, MCUs, application processors, DSPs, SoCs, NPUs, GPUs, and FPGAs
- Examination of the processor trade-offs between processing efficiency, flexibility, and power consumption for AI and autonomous systems
- Examination of technology trends and use cases for AI at the edge and endpoint in markets such as consumer, industrial, automotive, and transportation
- Examination of technology trends and use cases for AI in edge infrastructure
- Emerging AI research

CORE RESEARCH

- Worldwide Edge and Endpoint AI Processing Market Forecast
- Edge and Endpoint AI Processing Technology Assessments
- AI Processing in the Vehicle
- AI Inferencing at the Edge — Start-Ups and Vendors to Watch
- Emerging AI Research with Potential Implications for Processors
- AI Technology Assessment — Surveillance, Security, and Video Processing
- Industrial Applications for Edge and Endpoint AI Processing Technology
- AI Edge Infrastructure: The Heavy and Light Edge, Servers, MECs, and Gateways
- Venture Investments in AI Semiconductors

In addition to the insight provided in this service, IDC may conduct research on specific topics or emerging market segments via research offerings that require additional IDC funding and client investment. To learn more about the analysts and published research, please visit: [Enabling Technologies: Artificial Intelligence Edge Processor Architectures](#).

KEY QUESTIONS ANSWERED

1. How has the competitive landscape for processors changed with the demand for AI processing and what are the key architectures?
2. Which companies are driving AI processing at the edge?
3. What are the key market and technology trends in edge AI?
4. What are the challenges in implementing AI for the edge?
5. How big is the AI edge infrastructure market and what are the systems in heavy and light edge infrastructure?
6. What innovations are start-ups pursuing for edge AI?
7. How could the latest research in AI impact processors and accelerators?

COMPANIES ANALYZED

This service reviews the strategies, market positioning, and future direction of several providers in IDC's *Enabling Technologies: Artificial Intelligence Edge Processor Architectures* market, including the following:

Ambarella, AMD, AMS, Analog Inference, Aptiv, Arm, Arrow Electronics, Avnet, Blaize, BMW, Broadcom Inc., CEVA Logistics, Continental AG, Cypress, DENSO, Esperanto Technologies, Flex Logix, Hailo, Hewlett Packard Enterprise, Imagination

Technologies, Intel, Lattice Semiconductor, MediaTek, Mercedes-Benz, Microchip Technology, Mythic, NVIDIA, NXP Semiconductors, Qualcomm, Robert Bosch, Samsung, SiFive, Sony, STMicroelectronics, and Tesla