

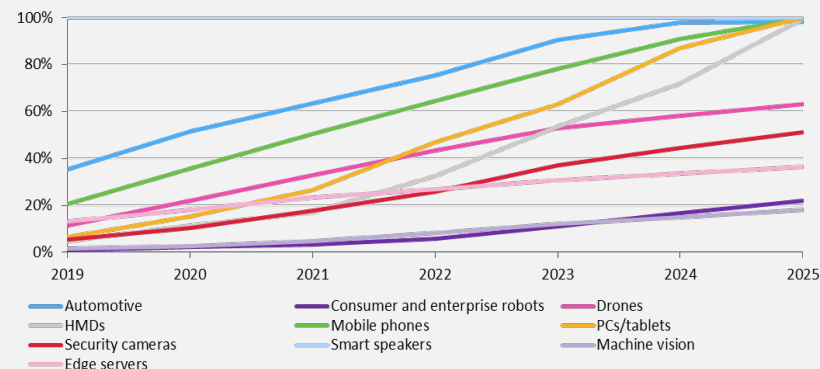
Artificial Intelligence for Edge Devices 2020 Report

Part of the AI & Intelligent Automation
Service Area Package

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AI edge device attach rates, world markets: 2019–25



Source: Omdia

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Edge-Based AI Chipsets and Accelerators for Mobile Phones, Smart Speakers, HMDs, Automotive, PCs/Tablets, Drones, Security Cameras, Robots, Edge Servers, and Machine Vision: Global Market Analysis and Forecasts

AI chipsets appeared on the horizon in 2016 after the industry began to grasp the vast computing needs of neural network (NN) processing. Early artificial intelligence (AI) chipsets, led by general-purpose graphics processing units, focused on the enterprise market and training workloads. They provided high compute capacity and the ability to run state-of-the-art networks at the time. However, the need for AI on edge devices was realized soon after and the race to design edge-optimized chipsets began. Edge inference has emerged as a key workload in 2019–20, and many companies have introduced their chipsets.

Several different factors are driving AI processing to the edge device. Privacy, security, cost, latency, and bandwidth are all being considered when evaluating data center versus edge processing needs. Applications like autonomous driving and navigation have sub-millisecond latency requirements that make edge processing mandatory. Other applications such as speech recognition on smart speakers generate privacy concerns. Keeping AI processing on the edge device circumvents privacy concerns while avoiding the bandwidth, latency, and cost concerns of cloud computing. Omdia forecasts that global AI edge chipset revenue will grow from \$7.7bn in 2019 to \$51.9bn by 2025.

This Omdia report provides a quantitative and qualitative assessment of the opportunity for AI edge processing across several consumer and enterprise device markets. The device categories include automotive, consumer and enterprise robots, drones, head-mounted displays (HMDs), mobile phones, PCs/tablets, security cameras, smart speakers, machine vision, and edge servers. Global revenue and shipment forecasts, segmented by chipset architecture, power consumption, compute capacity, training versus inference, and application attach rate for each device category, extend through 2025.

Report Coverage

KEY ISSUES ADDRESSED	KEY MARKET FORECASTS	COVERAGE	APPLICABLE TO
<ul style="list-style-type: none"> • Why is AI processing moving to the edge? • How will AI processing hardware vary among different device types? • How has the AI edge chipset market evolved since 2018? • What are the most popular AI edge applications? • What is the role of SoC accelerators at the edge and how will they compare to ASICs, CPUs, GPUs, and FPGAs? • What are the expected attach rates for AI edge processing through 2025? • Which chipset architectures are popular with different edge devices? • Which hardware companies will benefit from AI processing moving to the edge? • What are the key companies in the AI edge chipset market? 	<p>World markets: 2019 – 25</p> <ul style="list-style-type: none"> • AI edge chipset revenue • AI edge device attach rates • AI edge chipset revenue <ul style="list-style-type: none"> • by device category • by chipset type • by power consumption • by compute capacity • AI edge chipset shipments <ul style="list-style-type: none"> • by device category • by chipset type • AI edge chipset revenue for inference vs. training 	<p>Device Categories</p> <ul style="list-style-type: none"> • Automotive • Consumer and enterprise robots • Drones • HMDs • Smart speakers • Mobile phones • PCs/tablets • Security cameras • Machine vision • Edge servers <p>Chipset Types</p> <ul style="list-style-type: none"> • CPU • GPU • FPGA • ASIC • SoC accelerator 	<p>Applications</p> <ul style="list-style-type: none"> • Data/image analytics • Emotion recognition • Face recognition • Object detection • SLAM • Text/language processing • Voice/speech recognition <p>Regions</p> <ul style="list-style-type: none"> • North America • Europe • Asia Pacific • Latin America • Middle East & Africa
			<ul style="list-style-type: none"> • AI technology companies • Semiconductor and chipset vendors • Edge computing software vendors • Electronic design automation companies • Automotive companies • Drone and robot manufacturers • Machine vision companies ☑ • PC and server manufacturer companies • Investor community

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