



TRANSFORM RETAIL WITH AMD

Consumer behavior is increasingly driven by a mix of in-store, online and omnichannel experiences, while behind the scenes, retailers are racing to confront the challenges and opportunities of cost control, customer retention, logistics/supply chain, trend forecasting and resource management. Facing rapidly changing shopping behaviors, complex supply chains and frequently thin margins, retailers must leverage technology at every step to gather insights and optimize their connections to their customers, enable seamless financial transactions and reduce retail crime.

AMD EPYC™ processors help you build highly effective retail operations and gain operational efficiencies with excellent workload performance, impressive power efficiency and lower TCO—in the data center, in the cloud and in-store at the intelligent edge.

UNDERSTAND THE TRENDS, MEET THE CHALLENGES

- **Data is driving retail innovation** as retailers exploit it to increase revenue, cut costs and delight customers. Data-collecting devices are now deployed throughout stores, and the vast, diverse array of structured and unstructured data they gather can be organized and analyzed – often using AI tools – to support trend forecasts, make upsell/cross-sell recommendations and optimize pricing. Retailers are spending to succeed, with 57% reporting they plan to spend more on software in 2024, and they will prioritize marketing and IT investments.¹

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- **Customer expectations continue to evolve** so retailers are exploring new omnichannel models and technologies designed to meet consumers where they are, in-store or online.
- **Technology can help with loss prevention.** Losses added up to \$112.1 billion in 2022. In addition to increasing physical security, retailers are striving to use everything from predictive analytics to real-time AI-assisted video surveillance and facial recognition to stem their losses.
- **AI promises efficiency throughout the retail channel**, with retailers' top 2024 AI priorities on enhancing end-to-end supply chain visibility; enabling personalized product recommendations; improving workforce management, hiring and training; and powering customer service chat bots. AI tools can also analyze in-store video in search of greater store efficiency.
- **Cloud solutions are moving towards the edge**, as retail IT leaders embrace new efficient, small form-factor servers that can be deployed at the retail edge without disruption or excessive noise. Such servers offers retailers the chance to enjoy the many benefits of a public cloud deployment but within the relatively secure confines of a private cloud.

WHAT IF YOU COULD:

Modernize your infrastructure to embrace innovative technologies without large budget increases?

Reduce inventory shrinkage by enabling real-time AI inferencing on video and other IoT (Internet-of-things) data?

Improve the performance of your data center, cloud infrastructure and edge deployments even as you consolidate to save money, space and energy?

Create integrated, cohesive, data-driven digital ecosystems that are designed to serve the customer, adapt to market conditions and be flexible enough to run scalable apps seamlessly integrated across business units?

Increase sales by powering data analytics that can better position supply at the point of demand and shape customer demand to the availability of supply?

Know your customer better and address cybersecurity concerns with innovative security safeguards built into the silicon that help you address the impacts of retail crime and cyberattacks and their associated costs?

AMD: POWERING NEW POSSIBILITIES IN RETAIL

OPTIMIZE PERFORMANCE, POWER EFFICIENCY AND TCO IN YOUR RETAIL IT INFRASTRUCTURE TO DRIVE SALES AND SERVICE.

Enable highly effective retail operations and gain operational efficiencies with the leadership workload performance, impressive power efficiency and game changing TCO of the AMD data center portfolio, led by AMD EPYC processors. AMD EPYC processor-powered solutions drive the innovative approaches retailers need in logistics/supply chain, distribution, marketing, customer loyalty, in-store interactions and point-of-sale systems.

ACCELERATE PRODUCTIVITY, MAKE INFORMED DECISIONS AND SPEED TIME TO INSIGHT...AND SALES.

- AMD EPYC processors power servers that deliver cost-optimized performance across a wide range of retail workloads. They help lay the groundwork for rapid efficiency gains so you can achieve improved performance-to-power ratios within current budgets.
- AMD EPYC processors offer high core counts, I/O and memory bandwidth that address the specific needs of retail workloads, create cloud-enabled content delivery networks and manage data processing in point-of-sale systems at the intelligent edge.
- Ultra-high-density AMD EPYC 97x4 processors deliver the high performance and remarkable energy efficiency an enterprise needs on-premises and in the cloud to succeed.
- Security features in AMD EPYC processor-powered servers can enable Know Your Customer (KYC) applications to comply with regulations and manage customer information effectively.
- Servers using energy-efficient AMD EPYC 8004 processors are purpose-built for edge computing. They enable high productivity, fast informed decisions and a rapidly responsive business by moving collection, compute and analytics closer to the data source, accelerating the impact of advanced retail technologies.

GET TOP FLOATING POINT PERFORMANCE FOR CALCULATION-HEAVY APPLICATIONS

A 2P AMD EPYC 9684X-powered server outperforms a 2P Intel® Xeon® Platinum 8592+-powered server by 31%. [SP5-235](#)

OPTIMIZE CLOUD NATIVE PERFORMANCE AND CLOUD INSTANCES

A 2P AMD EPYC 9754-powered server outperforms a 2P Intel® Xeon® 8490H-powered server, with up to 2.8X the average throughput performance for cloud-native workloads, platforms and stores including Redis (get), Redis (set), Cassandra, Memcached and MySQL TPROC-C.²

GET A STREAMING COMPRESSION ADVANTAGE

An AWS EC2 M7a.4xlarge cloud instance delivers up to a 1.36x performance uplift with Apache® Kafka® compared to an AWS Intel M7i.4xlarge instance.³

GET BETTER DECISION SUPPORT

Amazon EC2 M7a instances powered by 4th Gen AMD EPYC processors deliver performance gains of up to 48% on a decision support benchmark based on TPC-DS at a scale factor of 3000 GB versus comparable Amazon EC2 M6i instances powered by 3rd Gen Intel Xeon CPUs and gains of up to ~30% versus comparable Amazon EC2 M7i instances powered by 4th Gen Intel Xeon CPUs.⁴



MODERNIZE YOUR INFRASTRUCTURE WITH INNOVATIVE DESIGN, SCALABILITY AND ENERGY-EFFICIENCY.

- AMD EPYC processor-powered servers can deliver high performance-to-power ratios and low TCO that help users optimize their data centers and physical space, get more performance from the same or less data center power, space or budget. Leverage AMD EPYC CPUs' scalability and containerization.
- Use AMD EPYC processor-powered cloud instances to embrace VDI and HCI in retail, leveraging advanced virtualization capabilities to optimize inventory management and customer interaction resources.
- AMD collaborates with a broad network of solution providers to help ensure your applications run exceptionally well. With AMD EPYC, you can experience worry-free migration and seamless integration with existing x86 infrastructures. Explore the ecosystem at amd.com/en/where-to-buy/processors/epyc/ecosystem-partners.html.

THE SPACE FOR IT INNOVATION IS ALREADY IN YOUR DATA CENTER

Consolidate existing workloads efficiently to free up space and energy to deploy innovative solutions like AI.

THE IMPACT OF ENERGY EFFICIENT SERVERS ^{SP5TCO-032}

10K SPECrate®2017_int_base total

2P 60C
Intel® Xeon®
8490H
powered
servers



2P 96C
AMD EPYC™
9654
powered
servers

- ~45% fewer servers
- ~45% less power
- ~43 acres of US Forest annual equivalent sequestration
- ~46% lower OPEX
- ~58% lower CAPEX
- ~54% lower 3-yr TCO

SUPPORT AI THROUGHOUT YOUR BUSINESS

with outstanding end-to-end AI performance on a wide variety of use cases covering training, inferencing and throughput.

- Gain outstanding AI training performance. An AMD Instinct™ MI300X accelerator can hold 2x the number of models in high-bandwidth memory (HBM3) compared to an Nvidia H100 CPU on Llama2-70b. ^{MI300-39}
- Get Impressive inference performance. A 2P AMD EPYC 9654 powered server delivers 78% speedup on vehicle detection and 14% speedup on age-gender recognition compared to a 2P Intel® Xeon® Platinum 8940H powered server both with AVX-512 on with OpenVINO FP16-INT8. ^{SP5-192, SP5-193}

DEPLOY INNOVATIVE RETAIL SOLUTIONS

- VMs can easily be migrated from existing infrastructure to AMD EPYC without any application downtime. AMD and VMware® have jointly developed [an open-source tool to automate VM Migration](#), making it easy to migrate VMs from your existing infrastructure to AMD EPYC.
- Deploy more VDI desktop sessions at the edge with 1P servers: a 32C AMD EPYC 8324P powered server delivers ~1.3x the desktop sessions/system watt/system \$ compared to a 32C Intel® Xeon® Gold 6421N-powered server on Login VSI. ^{SP6-010}

CONFIDENTLY NAVIGATE TODAY'S BUSINESS COMPLEXITIES AND REQUIREMENTS.

- Built-in at the silicon level, AMD Infinity Guard offers the advanced capabilities required to help defend against internal and external threats and keep your data safe.⁵
- Building on the AMD Infinity Guard feature set, 4th Gen AMD EPYC processors add improved features such as 256b AES-XTS encryption and SEV-SNP for CXL™ type 3 memory expansion to help make strong security features even stronger.
- AMD is a pioneer of Confidential Computing, addressing the special security concerns you may have about migrating sensitive applications and data to the cloud.



CREATE THE RETAIL INFRASTRUCTURE YOU NEED FOR TODAY AND TOMORROW.

In the fast-paced world of retail, technology is crucial for success as consumer expectations change, supply chains become more complex and profit margins tighten. Solutions powered by AMD offer enhanced performance, efficiency and cost-effectiveness, making them valuable assets. Embracing AMD enables retailers to boost productivity, make informed decisions and innovate quickly. Get solutions designed for retail's unique needs, emphasizing innovation and efficiency. Transform Retail with AMD.

together we advance_retail

LOOKING FOR MORE GUIDANCE? HAVE QUESTIONS?

VISIT [AMD.COM](https://www.amd.com) AND [AMD.COM/EPYC](https://www.amd.com/epyc)

For details on the claims used in this document, visit [amd.com/en/claims/epyc](https://www.amd.com/en/claims/epyc) and [amd.com/en/claims/epyc4](https://www.amd.com/en/claims/epyc4).

1 Gartner Digital Marketing Insights™, "2024 Tech Trends in Retail: Insights to Attract and Retain Software Buyers," Molly Burke, November 30, 2023, <https://www.gartner.com/en/digital-markets/insights/2024-tech-trends-in-retail>. GARTNER DIGITAL MARKETS is a registered trademark of Gartner, Inc. and/or its affiliates in the U.S. and international.

2 <https://www.amd.com/content/dam/amd/en/documents/epyc-business-docs/performance-briefs/amd-epyc-9754-pb-cloud-native-workloads.pdf>

3 <https://www.amd.com/content/dam/amd/en/documents/epyc-technical-docs/white-papers/amd-epyc-9004-wp-kafka-compression.pdf>

4 <https://www.amd.com/content/dam/amd/en/documents/epyc-technical-docs/performance-briefs/amd-epyc-9004-pb-aws-m7a-cloudera.pdf>

5 AMD Infinity Guard features vary by EPYC processor generations and/or series. Infinity Guard security features must be enabled by server OEMs and/or cloud service providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at [amd.com/en/technologies/infinity-guard](https://www.amd.com/en/technologies/infinity-guard). GD-183A.