December 6, 2023

AMD Extends Mobile PC Leadership with AMD Ryzen™ 8040 Series Processors and Makes Ryzen™ AI Software Widely Available, Advancing the AI PC Era

— Acer, Asus, Dell, HP, Lenovo and Razer laptops powered by AMD Ryzen™ 8040 Series mobile processors to deliver advanced computing for work, play, and AI-enabled experiences —

— Ryzen™ AI 1.0 Software available to make it easier to deploy models on Ryzen AI PCs —

SANTA CLARA, Calif., Dec. 06, 2023 (GLOBE NEWSWIRE) -- Today, AMD (NASDAQ: AMD) announced the new AMD Ryzen™ 8040 Series mobile processors, extending its leadership mobile offerings with best-in-class x86 processor performance.[1] With the integrated Ryzen AI NPU on-die on select models, AMD is bringing even more state-of-the-art AI PCs to market,[1] with up to 1.6x more AI processing performance than prior AMD models,[2] to deliver new premium experiences and AI-ready capabilities. To further enable great AI experiences, AMD is also making Ryzen AI[3] Software widely available for users to easily build and deploy machine learning models on their AI PCs.

AMD Ryzen 8040 Series processors are the latest to join the powerful Ryzen™ Series processor portfolio and are expected to be broadly available from leading OEMs including Acer, Asus, Dell, HP, Lenovo, and Razer, beginning in Q1 2024.

“We continue to deliver high performance and power-efficient NPUs with Ryzen AI technology to reimagine the PC,” said Jack Huynh, SVP and GM of AMD computing and graphics business. “The increased AI capabilities of the 8040 series will now handle larger models to enable the next phase of AI user experiences.”

AMD Ryzen™ 8040 Series Processors
AMD Ryzen™ 8040 Series processors offer next-level performance from everyday productivity to incredible content creation, with the Ryzen 9 8945HS processor offering up to 64% faster video editing and up to 37% faster 3D rendering than the competition,[4] while gamers can enjoy up to 77% faster gaming performance.[5]

Designed on AMD “Zen 4” processor architecture and with up to eight cores capable of delivering up to 16 threads of processing power, the Ryzen 9 8945HS offers leading single-core and multi-core performance.[6] With AMD RDNA™ 3 architecture-based Radeon™ graphics and select systems powered by AMD XDNA™ architecture built for AMD Ryzen™ AI, the new processors are designed for creative professionals, gamers, and mainstream users looking for a powerful laptop with trusted performance today, and the capability to run advanced AI experiences.

The latest Ryzen™ processors provide the most performance available for ultrathin PC laptops and long battery life through innovative power management features, making it the perfect choice for modern professionals, gaming enthusiasts and creatives looking for faster and more power-efficient computing. AMD Ryzen 8040 Series processors also come with advanced LPDDR5 memory support. With these new processors, users are able to take advantage of immersive virtual experiences, gaming and streaming, and trust that their devices support demanding AI use cases while maintaining power efficiency.

Model	Cores / Threads	Boost[7]/Base Frequency	Total Cache	TDP	NPU
AMD Ryzen™ 9 8945HS	8C/16T	Up to 5.2 GHz / 4.0 GHz	24MB	45W	Yes
AMD Ryzen™ 7 8845HS	8C/16T	Up to 5.1 GHz / 3.8 GHz	24MB	45W	Yes
AMD Ryzen™ 7 8840HS	8C/16T	Up to 5.1 GHz / 3.3 GHz	24MB	28W	Yes
AMD Ryzen™ 7 8840U	8C/16T	Up to 5.1 GHz / 3.3 GHz	24MB	28W	Yes
AMD Ryzen™ 5 8645HS	6C/12T	Up to 5.0 GHz / 4.3 GHz	22MB	45W	Yes
AMD Ryzen™ 5 8640HS	6C/12T	Up to 4.9 GHz / 3.5 GHz	22MB	28W	Yes
AMD Ryzen™ 5 8640U	6C/12T	Up to 4.9 GHz / 3.5 GHz	22MB	28W	Yes
AMD Ryzen™ 5 8540U	6C/12T	Up to 4.9 GHz / 3.2 GHz	22MB	28W	NA
AMD Ryzen™ 3 8440U	4C/8T	Up to 4.7 GHz / 3.0 GHz	12MB	28W	NA

AMD Ryzen 8040 processors are ready to leverage the full range of the Windows 11 ecosystem for optimized performance, including full support for Windows 11 security features. Select systems with an AMD Ryzen 8040 Series processor can also access out-of-the-box AI with Window Studio Effects Pack, enabling privacy at home or on-the-go with background blur, eye gaze tracking, and noise cancellation.

"It’s been incredible to see AMD and Microsoft's long partnership moving into the next wave of technology, bringing AI innovation to our shared customers,” said Pavan Davuluri, CVP Windows + Devices, Microsoft. “We’re so excited to see Ryzen 8040 Series processor-powered devices come to life in the Windows ecosystem and can’t wait to see what developers and customers do with all of this innovation.”

Introducing Developer Software for Ryzen AI
Ryzen AI Software is now widely available, making it possible for developers to build and deploy machine learning models trained in frameworks such as PyTorch or TensorFlow and run them on select laptops powered by Ryzen AI.

The 1.0 version of Ryzen AI software enables ONNX Runtime applications and offers a pre-optimized model zoo on Hugging Face, allowing users to get started and up and running AI models in minutes. Laptops with Ryzen AI can offload AI models to the NPU, thereby freeing up the CPU to reduce power consumption[8] while extending battery life[9]. As part of the Ryzen AI software launch, developers can take advantage of Ryzen AI to build AI applications with advanced gesture recognition, biometric authentication, and other accessibility features. Developers are also given early access support for Automatic Speech Recognition models like Whisper and Large Language Models (LLM) like OPT and Llama-2 in order to build natural language speech interfaces for their applications and unlock other Natural Language Processing features such as document summarization and email assistance.

AMD also recently announced the Pervasive AI Developers Contest to challenge developers to create innovative and exciting AI applications with use cases in data centers, workstations and laptops, gaming, robotics, and more. One contest option is for developers to build applications for PCs using vision, speech, or domain-optimized LLMs to bring the AI PC to

life and highlight its potential to improve user experience and efficiency. Applications for the complementary hardware closes on January 31.

Supporting Resources

- Learn more about Ryzen mobile processors
- Learn more about Ryzen AI
- Learn more about Ryzen AI Software
- Learn more about the AMD Pervasive AI Developers Contest
- Become a fan of AMD on Facebook
- Follow AMD on X

About AMD
For more than 50 years AMD has driven innovation in high-performance computing, graphics and visualization technologies. Billions of people, leading Fortune 500 businesses and cutting-edge scientific research institutions around the world rely on AMD technology daily to improve how they live, work and play. AMD employees are focused on building leadership high-performance and adaptive products that push the boundaries of what is possible. For more information about how AMD is enabling today and inspiring tomorrow, visit the AMD (NASDAQ: AMD) website, blog, LinkedIn and X pages.

Cautionary Statement
This press release contains forward-looking statements concerning Advanced Micro Devices, Inc. (AMD) such as the features, functionality, performance, availability, timing and expected benefits of the AMD Ryzen™ 8040 Series mobile processors, which are made pursuant to the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are commonly identified by words such as "would," "may," "expects," "believes," "plans," "intends," "projects" and other terms with similar meaning. Investors are cautioned that the forward-looking statements in this press release are based on current beliefs, assumptions and expectations, speak only as of the date of this press release and involve risks and uncertainties that could cause actual results to differ materially from current expectations. Such statements are subject to certain known and unknown risks and uncertainties, many of which are difficult to predict and generally beyond AMD's control, that could cause actual results and other future events to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. Material factors that could cause actual results to differ materially from current expectations include, without limitation, the following: Intel Corporation’s dominance of the microprocessor market and its aggressive business practices; economic uncertainty; cyclical nature of the semiconductor industry; market conditions of the industries in which AMD products are sold; loss of a significant customer; impact of the COVID-19 pandemic on AMD’s business, financial condition and results of operations; competitive markets in which AMD’s products are sold; quarterly and seasonal sales patterns; AMD's ability to adequately protect its technology or other intellectual property; unfavorable currency exchange rate fluctuations; ability of third party manufacturers to manufacture AMD's products on a timely basis in sufficient quantities and using competitive technologies; availability of essential equipment, materials, substrates or manufacturing processes; ability to achieve expected manufacturing yields for AMD’s products; AMD's ability to introduce products on a timely basis with expected features and performance levels; AMD's ability to generate revenue from its semi-custom SoC products; potential security vulnerabilities; potential security incidents including IT outages, data loss, data breaches and cyber-attacks; potential difficulties in operating AMD’s newly upgraded enterprise resource planning system; uncertainties involving the ordering and shipment of AMD’s products; AMD’s reliance on third-party intellectual property

to design and introduce new products in a timely manner; AMD's reliance on third-party companies for design, manufacture and supply of motherboards, software, memory and other computer platform components; AMD's reliance on Microsoft and other software vendors' support to design and develop software to run on AMD's products; AMD's reliance on third-party distributors and add-in-board partners; impact of modification or interruption of AMD's internal business processes and information systems; compatibility of AMD's products with some or all industry-standard software and hardware; costs related to defective products; efficiency of AMD's supply chain; AMD's ability to rely on third party supply-chain logistics functions; AMD's ability to effectively control sales of its products on the gray market; impact of government actions and regulations such as export regulations, tariffs and trade protection measures; AMD's ability to realize its deferred tax assets; potential tax liabilities; current and future claims and litigation; impact of environmental laws, conflict minerals-related provisions and other laws or regulations; impact of acquisitions, joint ventures and/or investments on AMD's business and AMD's ability to integrate acquired businesses; impact of any impairment of the combined company's assets; restrictions imposed by agreements governing AMD's notes, the guarantees of Xilinx's notes and the revolving credit facility; AMD's indebtedness; AMD's ability to generate sufficient cash to meet its working capital requirements or generate sufficient revenue and operating cash flow to make all of its planned R&D or strategic investments; political, legal and economic risks and natural disasters; future impairments of technology license purchases; AMD's ability to attract and retain qualified personnel; and AMD's stock price volatility. Investors are urged to review in detail the risks and uncertainties in AMD's Securities and Exchange Commission filings, including but not limited to AMD's most recent reports on Forms 10-K and 10-Q.

© 2023 Advanced Micro Devices, Inc. All rights reserved. AMD, the AMD Arrow logo, Radeon, RDNA, Ryzen, XDNA, and combinations thereof are trademarks of Advanced Micro Devices, Inc. Dell is a trademark of Dell Inc. or its subsidiaries. HP® and the HP logo are registered trademarks of Hewlett-Packard Development Company, L.P. Lenovo® is a trademark of Lenovo in the United States, other countries, or both. Microsoft and Windows are registered trademarks of the Microsoft Corporation in the US and/or other countries. PyTorch, the PyTorch logo and any related marks are trademarks of The Linux Foundation. TensorFlow, the TensorFlow logo and any related marks are trademarks of Google Inc. Other product names used in this publication are for identification purposes only and may be trademarks of their respective owners.

---

[1] Testing as of Oct 2023 by AMD Performance Labs using the Cinebench nT benchmark to measure multi-thread CPU performance and 3DMark benchmark to measure graphics performance for the class of processors that is defined as AMD Ryzen 8040 Series processors and its competitive (Intel) x86 processor models available in market as of October 2023. Configuration for AMD processors: AMD Mayan reference board, 16GB RAM 7500MHz,1TB SSD, integrated Radeon 700M graphics, Windows 11 Pro. Configuration for Core i7-1360P: Dell Inspiron, integrated Iris Xe graphics, 16GB 4800MHz RAM, 1TB SSD, Windows 11 Pro. Configuration for Core i9-13900H: ASUS Vivobook, integrated Iris Xe Graphics, 16GB 4800MHz RAM, 1TB SSD, Windows 11 Pro; Configuration for i7-13700H: HP Spectre, integrated Iris Xe graphics, 16GB 3200MHz RAM, 2TB SSD, Windows 11 Pro; Configuration for Core i5-1340P: Samsung Galaxy Book, integrated Iris Xe graphics, 16GB 6000MHz RAM, 1TB SSD, Windows 11 Pro. 3DMARK is a registered trademark of UL Solutions. PC manufacturers may vary configurations yielding different results. Results may vary. HWK-18

[2] Based on AMD internal analysis of AMD Ryzen 8040 Series processors with an AI engine TOPS specification vs. previous gen Ryzen 7040 Series processors with an AI engine TOPS specification. HWK-17

[3] Ryzen™ AI is defined as the combination of a dedicated AI engine, AMD Radeon™ graphics engine, and Ryzen processor cores that enable AI capabilities. OEM and ISV enablement is required, and certain AI features may not yet be optimized for Ryzen AI processors. Ryzen AI is compatible with AMD Ryzen 7040 and 8040 Series processors except Ryzen 5 7540U, Ryzen 5 8540U, Ryzen 3 7440U, and Ryzen 3 8440U processors. Please check with your system manufacturer for feature availability prior to purchase. GD-220a.

[4] Testing as of Oct 2023 by AMD Performance Labs using the following benchmarks: Blender, POVRay, Handbrake, LAME, Puget Davinci Resolve, Puget Adobe Photoshop, PCMark 10. Configuration for AMD reference system: Ryzen 9 8945HS, integrated Radeon 780M graphics, 16GB RAM, Samsung 980 Pro 1TB NVMe, Windows 11 Pro. Configuration for Intel system: Core i9-13900H, integrated Iris Xe Graphics, 16GB RAM, 1TB SSD, Windows 11 Pro. Both with VBS enabled. PCMark is a registered trademark of Futuremark Corporation. PC manufacturers may vary configurations yielding different results. Results may vary. HWK-02

[5] Testing as of Oct 2023 by AMD Performance Labs on the following game titles at 1080p low settings, VBS enabled: Borderlands 3, F1 2022, Far Cry 6, Grand Theft Auto 5, Hitman 3, League of Legends, Shadow of the Tomb Raider, Tiny Tinas Wonderland, WoTenCore. Configuration for AMD reference system: Ryzen 9 8945HS, integrated Radeon 780M graphics, 16GB RAM, Samsung 980 Pro 1TB NVMe, Windows 11 Pro. Configuration for Intel system: Core i9-13900H, integrated Iris Xe Graphics, 16GB RAM, 1TB SSD, Windows 11 Pro. Both with VBS enabled. PC manufacturers may vary configurations yielding different results. Results may vary. HWK-01

[6] Testing as of Oct 2023 by AMD Performance Labs using the following benchmarks: Cinebench R23 and Geekbench 6. Configuration for AMD reference system: Ryzen 9 8945HS, integrated Radeon 780M graphics, 16GB RAM, Samsung 980 Pro 1TB NVMe, Windows 11 Pro. Configuration for Intel system: Core i9-13900H, integrated Iris Xe Graphics, 16GB RAM, 1TB SSD, Windows 11 Pro. Both with VBS enabled. PC manufacturers may vary configurations yielding different results. Results may vary. HWK-03

[7] Boost Clock Frequency is the maximum frequency achievable on the CPU running a bursty workload. Boost clock achievability, frequency, and sustainability will vary based on several factors, including but not limited to: thermal conditions and variation in applications and workloads. GD-150

[8] Based on testing by AMD as of 6/5/2023. Power consumption results evaluated by operation of a simulated nine-participant Microsoft Teams video conference using Windows Studio Effects and Nvidia Broadcast for the respective AI-enhanced background blur and eye gaze correction features. AMD system configuration: Razer Blade 14” laptop, AMD Ryzen 9 7940HS processor with Ryzen AI, Integrated AMD Radeon Graphics (22.40.03.24 driver), 16GB (8GBx2) LPDDR5, NVME SSD storage, Windows 11 Home 22H2. NVIDIA system configuration: NVIDIA GeForce RTX 4070 discrete graphics (528.92 driver), and NVIDIA Broadcast. System manufacturers may vary configurations, yielding different results. Results may vary. PHX-50.

[9] Based on testing by AMD as of 6/5/2023. Battery life results evaluated by operation of a simulated nine-participant Microsoft Teams video conference using a Ryzen 7940HS processor with Ryzen AI and integrated Radeon graphics with Windows Studio Effects vs. NVIDIA Broadcast for AI-enhanced background blur and eye gaze correction features with NVIDIA GeForce RTX 4070 discrete graphics. AMD/NVIDIA systems run from power level

100% to > 5% @150nits brightness and power mode set to ""power efficiency. System configurations: Razer Blade 14” laptop, AMD Ryzen 9 7940HS processor with Ryzen AI, Integrated AMD Radeon Graphics (22.40.03.24 driver), 16GB (8GBx2) LPDDR5, NVME SSD storage, Windows 11 Home 22H , NVIDIA GeForce RTX 4070 graphics (528.92 driver) with NVIDIA Broadcast. System manufacturers may vary configurations, yielding different results. Results may vary. PHX-51

Contact:
Stacy MacDiarmid
AMD Communications
+1 512-658-2265
Stacy.MacDiarmid@amd.com

Suresh Bhaskaran
AMD Investor Relations
+1 408-749-2845
Suresh.Bhaskaran@amd.com

Source: Advanced Micro Devices, Inc.