Dell Pro Micro: Speed customer interactions, patient processing, and learning endeavors

Significant system performance advantages over their 2022 OptiPlex 7000 predecessors make new Dell Pro Micro desktops powered by Intel® Core™ Ultra 5 235T processors worthy of consideration

AI continues to rank highly on trend forecasts across industries. And, while these software innovations are poised to revolutionize how we do business, AI's ability to boost productivity and improve your bottom line can be hobbled by underperforming hardware. This report focuses on the performance-based benefits you can expect by upgrading to new Dell™ Pro Micro commercial AI PCs equipped with the latest-gen Intel® silicon, built-in neural processing unit (NPU) technology, and AI accelerators.

Our hands-on general and on-device AI system performance testing reveal key areas where a Dell Pro Micro desktop powered by an Intel® Core™ Ultra 5 235T processor with Intel vPro® outmaneuvered its 2022 OptiPlex predecessor.

*Based on 3DMark® Steel Nomad GPU benchmark results.
† Based on Geekbench AI GPU (Half Precision) benchmark results.
†† Based on Procyon® AI Computer Vision (Intel OpenVINO™) benchmark results.

Complete GPU-intensive tasks in less time

with 4.1x the graphics performance*

Supercharge decision-making abilities

with 3.0x the on-device AI performance†

Accelerate time-to-outcome metrics

with 4.7x the AI inference performance††

How we tested

After 30+ years, Dell has rebranded the OptiPlex line as Dell Pro Desktops.[1] Like their OptiPlex predecessors, Dell Pro Desktops are designed for IT-managed environments in businesses of all sizes.[2] To determine the performance benefits of refreshing to new Dell Pro Micro desktops powered by Intel® Core™ Ultra 5 235T processors with Intel vPro®, we compared a Dell Pro Micro desktop's performance to that of a similarly configured 2022 OptiPlex 7000 Micro, with each running Windows 11 Pro:

Dell Pro Micro (2025)

- Intel® Core™ Ultra 5 235T processor with Intel vPro®
- Intel® Graphics
- 16 GB of DDR5 memory
- 256 GB of NVMe® SSD storage

Dell OptiPlex 7000 Micro (2022)

- Intel® Core™ i5-12500T processor with Intel vPro®
- Intel® UHD Graphics 770
- 16 GB of DDR4 memory
- 256 GB of NVMe SSD storage

To assess general and on-device AI system performance for a wide variety of tasks, including text and image generation, office work, complex calculations, data analysis, and high-fidelity graphics, we set the Windows 11 Pro power mode to "best performance" and ran these benchmarks:

- 3DMark Steel Nomad
- Cinebench 2024
- CrossMark®
- Geekbench AI
- Procyon AI Computer Vision Benchmark
- Procyon AI Image Generation Benchmark
- Procyon AI Text Generation Benchmark
- Procyon Office Productivity Benchmark
- Procyon Photo Editing Benchmark
- Procyon Video Editing Benchmark
- PugetBench for Creators

The results we report reflect the specific configurations we tested. Any difference in the configurations you test, as well as network traffic or software additions, can affect these results. For a deeper dive into our testing parameters and procedures, see the science behind the report.

Refresh advantages

Dell Pro Desktops are the company's first commercial desktops with NPUs and, according to Dell, "are bringing the benefits of AI-optimized performance and energy efficiency to PC users, regardless of form factor."[3] Like their OptiPlex predecessors, Dell Pro Desktops (available in all-in-one, micro, slim, and tower form factors) are designed for IT-managed environments and professional-grade productivity.[4] Equipped with Windows 11 Pro for "rapid onboarding, compatibility with your existing apps, and smooth, automated updates,"[5] these compact commercial AI PCs are ideal for businesses of all sizes, including healthcare organizations and educational institutions. Dell Pro Micro desktops also include built-in technologies to better drive your business toward its goals:

More powerful hardware: Leverage modern chipsets, faster memory, faster storage, and new fan optimizations that, according to Dell, make these desktops up to 8 percent cooler and 32 percent quieter than before.[6]

Enhanced security: In addition to advanced supply chain, hardware, Windows AI-powered, and firmware protections from Dell, Intel®, and Microsoft, Dell Pro Micro desktops include integrated validation for all driver and BIOS updates, as well as a published schedule for all driver and download releases.[7] Plus, Intel vPro® Security helps "defend against modern threats at each layer: hardware, BIOS/firmware, hypervisor, VMs, OS, and applications."[8] And the Intel® Threat Detection Technology (Intel® TDT) tool leverages AI power to detect and monitor threats.[9]

Simplified IT: Use ProDeploy for ready-to-use desktops on day one, improve cyber resilience with Dell Trusted Workspace, and use Microsoft Intune to manage your fleet over the cloud.[10]

Remote management: The Intel vPro® platform enables IT teams to monitor for threats and maintain their fleet on their schedule.[11]

Advanced sustainability: Dell Pro Micro desktops meet key sustainability criteria for energy efficiency (certified ENERGY STAR®) and climate impact (registered EPEAT Gold with Climate+). They are manufactured with 50 percent recycled steel in the chassis, 63 percent post-consumer recycled plastic, closed-loop plastic, and 13 percent recycled ocean-bound plastic.[12]

Comprehensive connectivity: Up-to-date connectivity options (Wi-Fi 7) with USB-C and USB-A standards, DisplayPort™ and HDMI 2.1 output options, as well as 2x optional USB 3.2 Gen 2 (10 Gbps) or Optical Fiber module solutions.[13]

Augmented productivity: Copilot in Windows 11 unlocks a user's own personal AI assistant so they can get real answers, grow their skills, and optimize workflows.[14]

The Dell Pro Micro desktop we tested was powered by an Intel® Core™ Ultra 5 235T processor with Intel vPro®. This processor integrates CPU, GPU, and NPU architectures and has an overall peak of 27 trillions of 8-bit integer (INT8) operations per second (TOPS). The CPU architecture has six performance-cores and eight low power efficient-cores. The GPU architecture has three Xe-cores and supports up to four displays. The NPU architecture supports OpenVINO™, WindowsML, DirectML, ONNX RT, and WebNN AI software. Learn more at: https://www.intel.com/content/www/us/en/products/sku/241872/intel-core-ultra-5-processor-235t-24m-cache-up-to-5-00-ghz/specifications.html.

Note: The graphs in this report use different scales. Please be mindful of each graph's data range as you compare.

Modernize productivity

It's imperative to keep pace with evolving technology demands and stay competitive in a rapidly changing market. By adopting more powerful and efficient Windows 11 Pro desktops, your organization can streamline workflows, reduce bottlenecks, and empower employees to accomplish tasks faster and with higher quality. This not only improves operational efficiency but also enhances the ability to innovate, respond to evolving needs, and embrace new opportunities.

In our general performance tests, enhanced graphics performance translates to accelerated content creation and design processes, as well as a smoother visual experience. Improved CPU power supports seamless multitasking and quicker processing of complex workloads. In all cases, increased system responsiveness reduces wait times and interruptions, enabling sustained attention and workflow continuity.

Figure 1: 3DMark Steel Nomad measures GPU performance. This content creation benchmark pushes the limits of graphics hardware by running a native 4K render.[15] Source: PT.

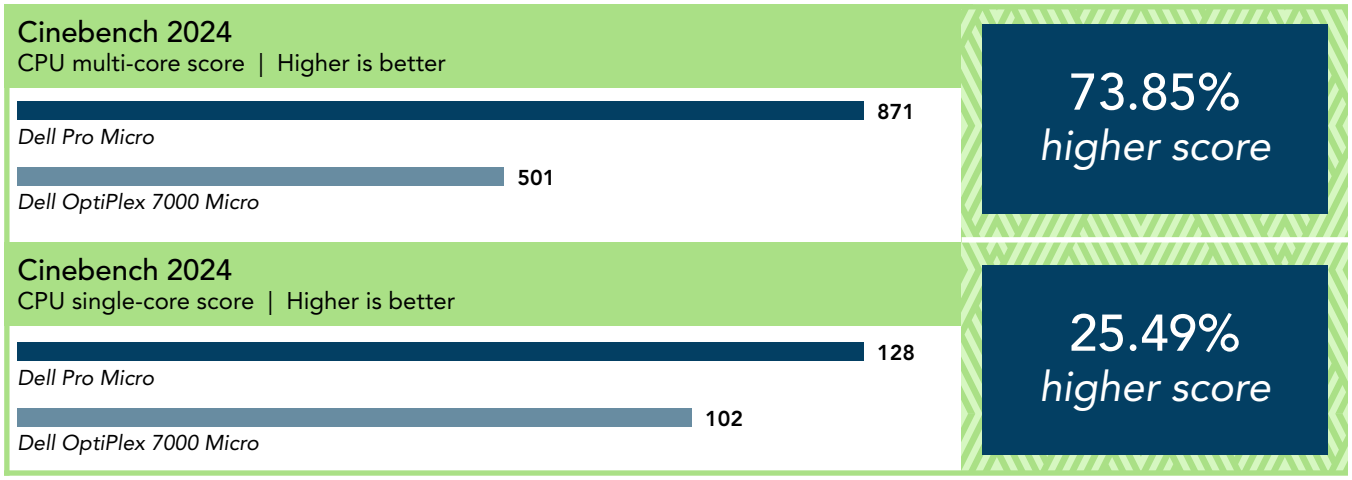

Figure 2: Cinebench 2024 measures CPU and GPU performance. This content creation benchmark utilizes Redshift for Cinema 4D to evaluate processor capabilities by rendering a 3D scene.[16] Source: PT.

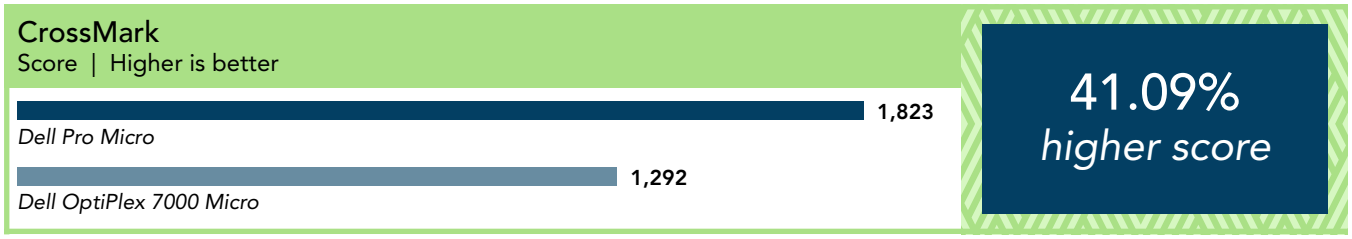

Figure 3: CrossMark measures overall system performance and system responsiveness, with a main focus on CPU capabilities. This general performance benchmark stresses system hardware by using models of real-world applications.[17] Source: PT.

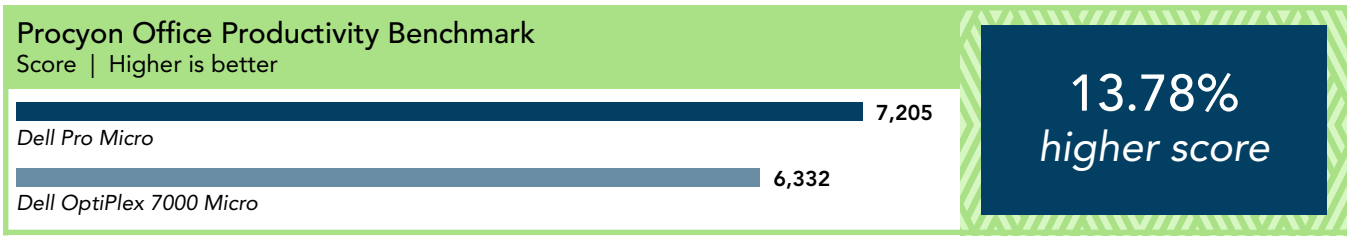

Figure 4: Procyon Office Productivity Benchmark measures CPU performance around common office productivity tasks. This general performance benchmark mimics a typical day at the office—even leaving Microsoft 365 apps "running in the background as the focus moves form one task to another."[18] Source: PT.

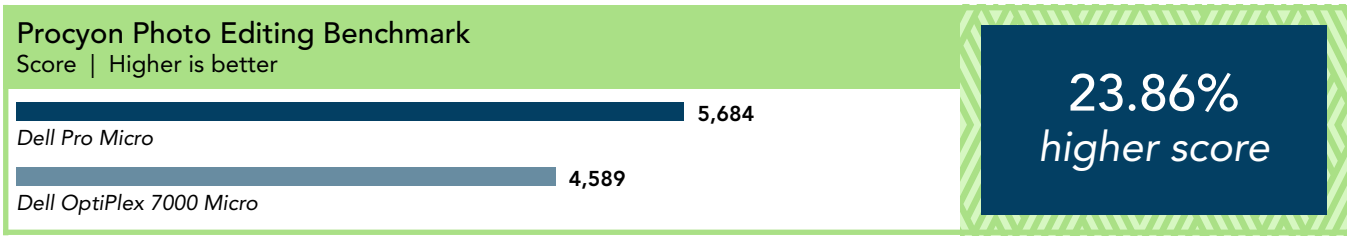

Figure 5: Procyon Photo Editing Benchmark measures CPU performance. This content creation benchmark uses Adobe® Photoshop® and Lightroom® Classic applications to mimic a "typical photo editing workflow that includes batch processing and image retouching."[19] Source: PT.

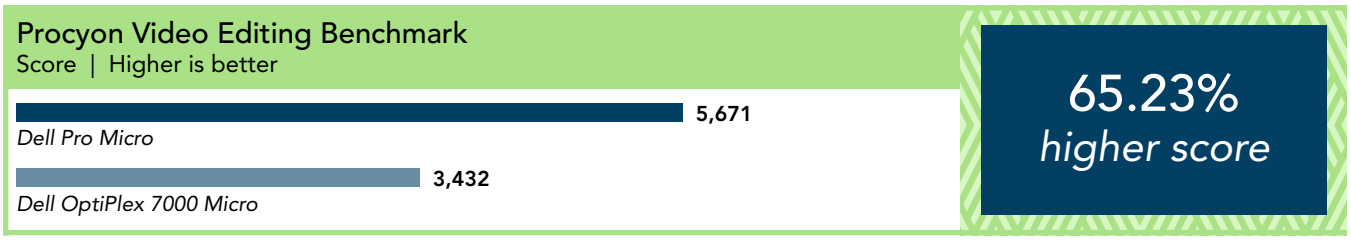

Figure 6: Procyon Video Editing Benchmark measures CPU and GPU performance. This content creation benchmark uses the Adobe Premiere® Pro application in a common video editing workflow that includes exporting video files.[20] Source: PT.

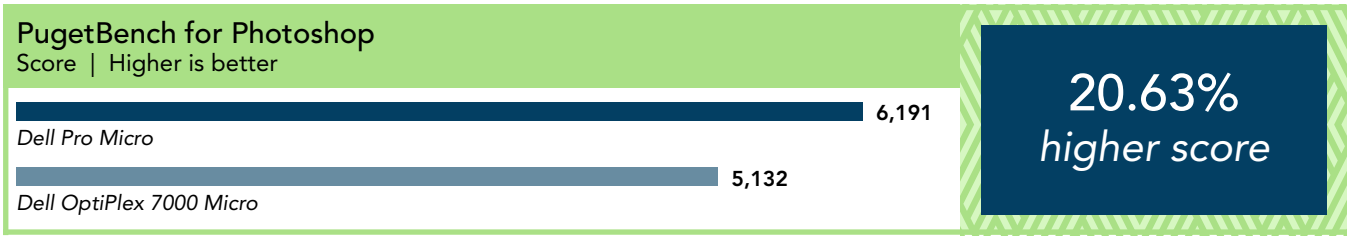

Figure 7: PugetBench for Photoshop measures CPU performance. This content creation benchmark uses the Adobe Creative Cloud app in real-world workflows.[21] Source: PT.

Figure 8: PugetBench for Premiere Pro measures CPU and GPU performance. This content creation benchmark uses the Adobe Creative Cloud app in real-world workflows.[22] Source: PT.

An AI primer

AI is software that mimics human behavior, decision-making, or intelligence. Machine learning (ML) is a subset of AI. ML uses algorithms to learn from data and make decisions on patterns. Deep learning (DL) is a subset of ML that uses neural networks to learn from data and interactions. GenAI is a type of DL that produces context (text, image, video) based on input and training. Small and large language models (SLMs and LLMs) are trained on text data to process, understand, and generate natural language. In addition to powering customer service chatbots and virtual assistants, they can automate text-based tasks, such as email generation, document summarization, language translation, and customer data analysis.

For this analysis, we used benchmarks to measure both GenAI and LLM performance on the Dell Pro Micro and OptiPlex 7000 Micro desktops, with each running Windows 11 Pro:

GenAI apps can boost productivity in customer operations, research and development, sales and marketing, and software development.

LLMs can help companies identify emerging trends, make informed and strategic decisions, and improve the customer experience.

Pave the way for innovation

AI and data-driven technology implementation is on the rise. For businesses looking to improve administrative workflows, learning outcomes, and patient care with AI, more powerful desktops can contribute to smoother and less frustrating user experiences. For institutions pushing forward with real-time analysis and predictive analytics initiatives, desktops need to be able to handle demanding computer vision applications and process large datasets.

In our tests, we looked at two types of on-device AI performance: GenAI and analytic AI using LLM models. This is important to you because, as these AI processes becomes better and more efficient, the datasets they produce are improving. This, in turn, opens up new pathways for innovation and discovery and powers better decision-making. In addition to speeding analytical AI processes, improved performance enables you and your teams to redesign workflows, elevate governance, and better mitigate risks.

Speed image and text generation efforts

When you watch a master chef prepare a meal, the raw ingredients affect the outcome—but it's the chef's skill that transforms the ingredients into a culinary masterpiece. GenAI may provide the basis for a meal, but it's the expert user that creates something truly exceptional from those raw materials. Less talented, less experienced individuals can use GenAI to help them create something edible. In the hands of a trained professional, however, the delicious possibilities are endless.

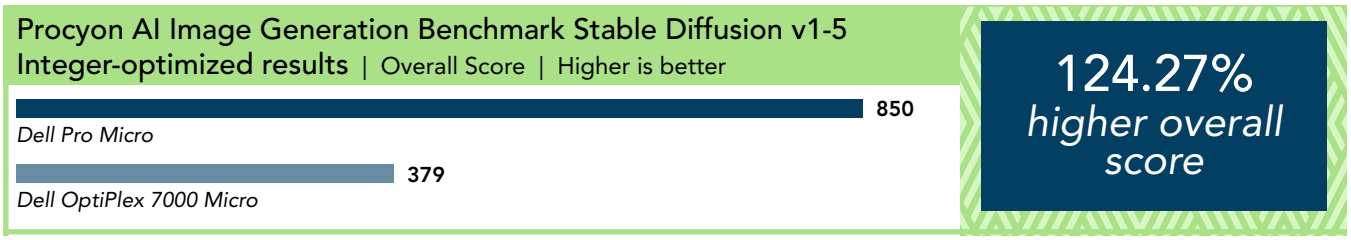

Figure 9: Procyon AI Image Generation Benchmark measures the inference performance of on-device AI accelerators.[23] Stable Diffusion v1-5 generates photo-realistic images from text prompts.[24] Source: PT.

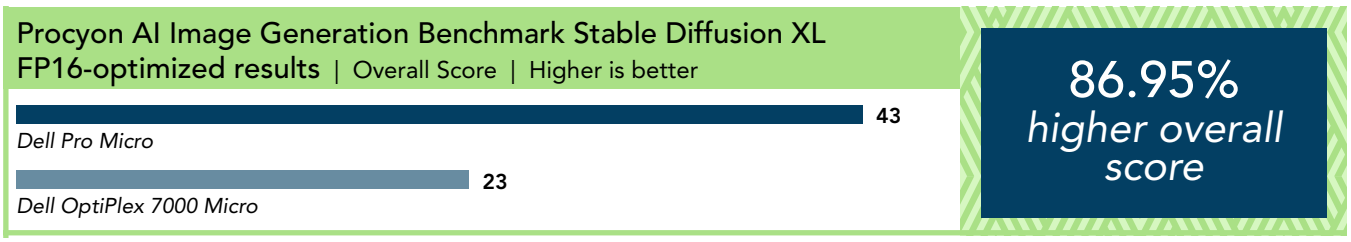

Figure 10: Procyon AI Image Generation Benchmark measures the inference performance of on-device AI accelerators.[25] Stable Diffusion XL generates more detailed imagery using shorter prompts.[26] Source: PT.

Procyon AI Text Generation Benchmark measures LLM performance.[27] These are the models and their use cases:

- **PHI 3.5:** This Microsoft SLM provides text summarization for researchers, code generation and assistance for developers, and multi-lingual translations for customer service chatbots.[28]
- **Mistral 7B:** This LLM converts text between languages, generates educational materials, automates data analysis, and aids code generation and analysis.[29]
- **Llama 3.1:** This LLM provides advanced reasoning and context for multilingual customer service agents and coding assistants.[30]

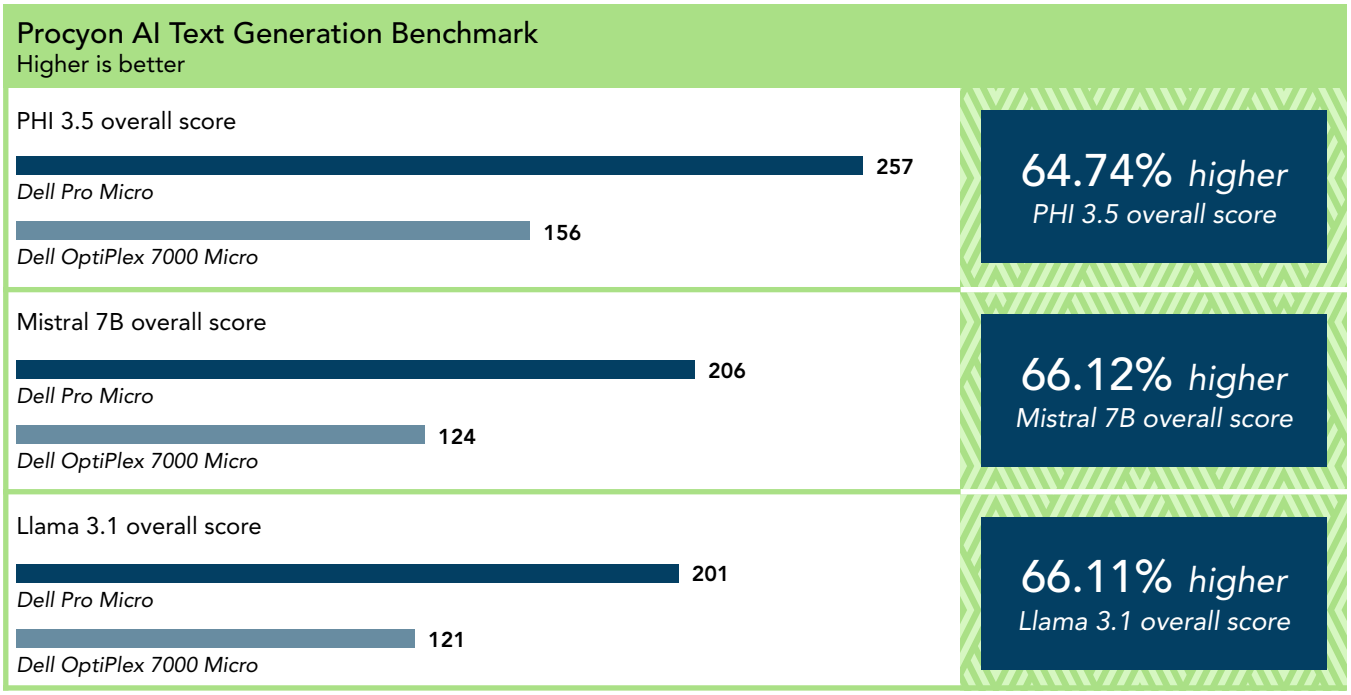

Figure 11: Procyon AI Text Generation Benchmark results. Source: PT.

In addition to scoring higher in our image and text generation benchmarks, the Intel Core Ultra 5 235T processor-powered Dell Pro Micro completed these tasks significantly less time than the 2022 Intel Core i5-12500T processor-powered Dell OptiPlex 7000 Micro did. To check out the overall duration and other sub-scores, go to the science behind the report.

While ChatGPT is garnering a lot of attention for individual experimentation, image and text generation are valuable tools for marketing and advertising, sales enablement, design conceptualization and exploration, and personalized learning experiences. Plus, your bottom line can benefit from shorter cycles for both customer service and design.

Enhance decision-making abilities

But GenAI isn't just for faster content creation and better marketing. According to an article providing takeaways from the recent Morgan Stanley Technology, Media & Telecom Conference, biotechnology and law were among the earliest industries to fully harness tailored AI for clinical trials, regulatory submissions, and paralegal work.[31] Additionally, sales teams and healthcare providers can use GenAI in conjunction with LLMs to personalize customer and patient interactions. Imagine how quickly your call desk operators, clinicians, and students could answer questions or get results with better on-device AI performance at their fingertips. This is where you really begin to see how the built-in NPU technology in the Dell Pro Micro desktop reduces the load on the CPU and the GPU.

Geekbench AI uses LLMs to measure CPU, GPU, and NPU capabilities for on-device machine learning capabilities.[32] We chose to highlight the Half Precision scores because Half Precision (FP16) "provides a good balance between speed and accuracy."[33] In our testing, we used the Intel OpenVINO™ AI framework. For a deeper dive into our results, which include Single Precision (FP32), Half Precision (FP16), and Quantized (INT8) scores, go to the science behind the report.

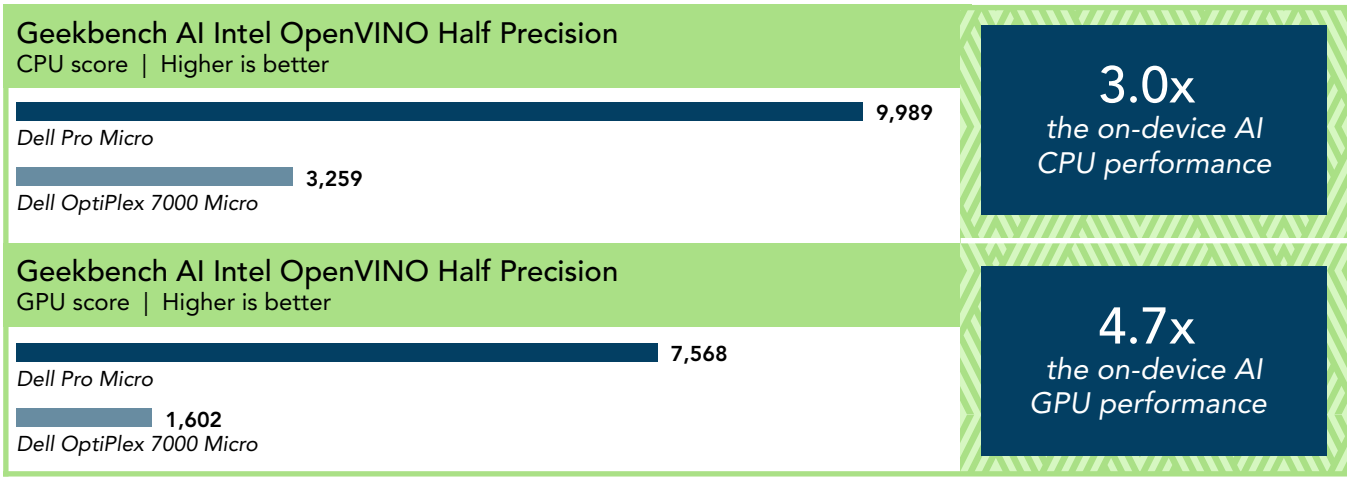

Figure 12: Geekbench AI benchmark results. Source: PT.

Better on-device AI performance means users can keep sensitive data local instead of using cloud-based apps. This enhances privacy and security for your business—no matter what that business is. For sales teams, on-device AI can help personalize and tailor recommendations to specific clients. For healthcare professionals, on-device AI can assist in diagnostics without transmitting patient data to the cloud. For training, AI can help provide customized learning experiences. Rapidly interpreting, analyzing, and extracting data from images and videos also speeds other tasks, including identifying people, objects, and scenes in photos. Additionally, extracting text from images aids translation for global communication.

Accelerate time-to-outcome metrics

Whether your users are leveraging computer vision algorithms to enhance patient care and streamline workflows, ensure quality control with visual data at the edge, or gather meaningful information from digital images and videos for interactive learning, the faster the desktop running these applications accomplishes these tasks, the sooner your users are able to make informed decisions and take actions.

Procyon AI Computer Vision Benchmark measures AI inference performance using different AI inference engines.[34] In our testing, we used the Intel OpenVINO toolkit. To complete these workloads, the Dell Pro Micro utilized its NPU architecture, and the Dell OptiPlex 7000 Micro utilized its GPU. These are the inference engines and their use cases:

- **MobileNetV3, ResNet-50, and Inception-v4:** Research institutions, tech companies, and individuals use these models for image recognition, object detection, and image classification tasks.[35,36,37]
- **DeepLabv3 and YOLOv3:** Video surveillance companies, healthcare providers, and manufacturers use these deep neural network (DNN) architectures to distinguish between different objects and features within images and videos.[38,39]
- **Real-ESRGAN:** Digital artists, medical professionals, and real estate firms use this generator and discriminator network (GAN) architecture to enhance image quality and resolution.[40]

In the integer-optimized testing, we found the inference counts were highest on the Real-ESRGAN model, which is a super-resolution model that uses complex calculations to restore and improve existing media.[41] And inference counts were lowest on the DeepLabv3 model, which is best suited for semantic segmentation tasks used in medical image and satellite image analysis.[42] For a deeper dive into our results, which includes integer (INT8), float16 (FP16), and float32 (FP32) scores, go to the science behind the report.

Figure 13: Procyon AI Computer Vision Benchmark results. Source: PT.

Better on-device AI inference performance means users can process images and videos more efficiently, accelerating time-to-outcome metrics. This is critical for tasks that require immediate responses, including fraud detection, facial recognition, and video surveillance. It's also helpful for anyone enhancing image quality and resolution on existing media.

Conclusion

In our hands-on tests, a new Dell Pro Micro desktop powered by an Intel® Core™ Ultra 5 235T processor with Intel vPro® and running Windows 11 Pro delivered substantial performance improvements over its 2022 OptiPlex 7000 Micro predecessor, particularly in graphics-based activities and on-device AI-powered tasks, such as GenAI and LLM workloads. These compact yet powerful desktops could help enhance productivity across diverse business environments. Refreshing to these new commercial AI PCs also delivers enhanced security, simplified IT management, and strong sustainability credentials.

By upgrading to Windows 11 Pro and Dell Pro Micro desktops powered by Intel Core Ultra 5 235T processors with Intel vPro®, organizations can expect to accelerate workflows, improve user experiences, and unlock new opportunities for innovation and efficiency in an increasingly AI-driven world.

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Read the science behind this report at https://facts.pt/8Tsl8cr ▶

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