



## Transform ideas into reality with the HP Z8 Fury G5 Workstation PC

### A comparison to a previous-generation workstation and a current-generation competitor

Whether you're generating three-dimensional images, shaping machine-driven interactions, or working with AI-based language technologies, the ultimate goal is the same: Get more done in less time. To test which system could help you complete your biggest projects—and save time doing so—we performed a variety of intensive tests on the HP Z8 Fury G5 Workstation PC, the HP Z8 G4 Workstation, and the Lenovo® ThinkStation® P620 Tower Workstation.

Get back time for  
important projects

Less waiting for renders,  
more time to create

Make faster diagnoses  
and predictions

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# We tested the following systems:

## The current-gen Z8 workstation:

### HP Z8 Fury G5 Workstation Desktop PC

1x 56-core Intel® Xeon® w9-3495X  
CPU (1.9 - 4.8 GHz)  
4x NVIDIA® RTX® 6000 Ada Generation GPUs

## The previous-gen Z8 workstation:

### HP Z8 G4 Workstation Desktop PC

2x 28-core Intel Xeon Gold 6258R  
CPUs (2.7 - 4.0 GHz)  
2x NVIDIA RTX A6000 GPUs

## A current-gen competitor:

### Lenovo ThinkStation P620 Tower Workstation

1x 64-core AMD Ryzen Threadripper PRO 5995WX  
CPU (2.7 - 4.5 GHz)  
2x NVIDIA RTX A6000 GPUs with NVLink

For more on our configurations and tests, read the reports:



## Content-creation benchmarks

- CPU single-core performance with Cinebench R23 and Geekbench 6 Pro
- GPU performance with augmented reality and machine learning workloads with Geekbench 6 Pro
- Production rendering performance with Maxon Redshift
- Photo-editing performance with an Adobe® Creative Cloud® app with PugetBench for Lightroom Classic
- GPU rendering and multi-GPU acceleration and ray-tracing performance with Blender

What could these wins mean for you?

## AI/ML testing

- Medical imaging and 3D image segmentation performance with 3D U-Net
- Speech recognition performance with RNN-T
- Natural language processing performance with BERT-99
- Image classification and detection performance with ResNet-50

What could these wins mean for you?

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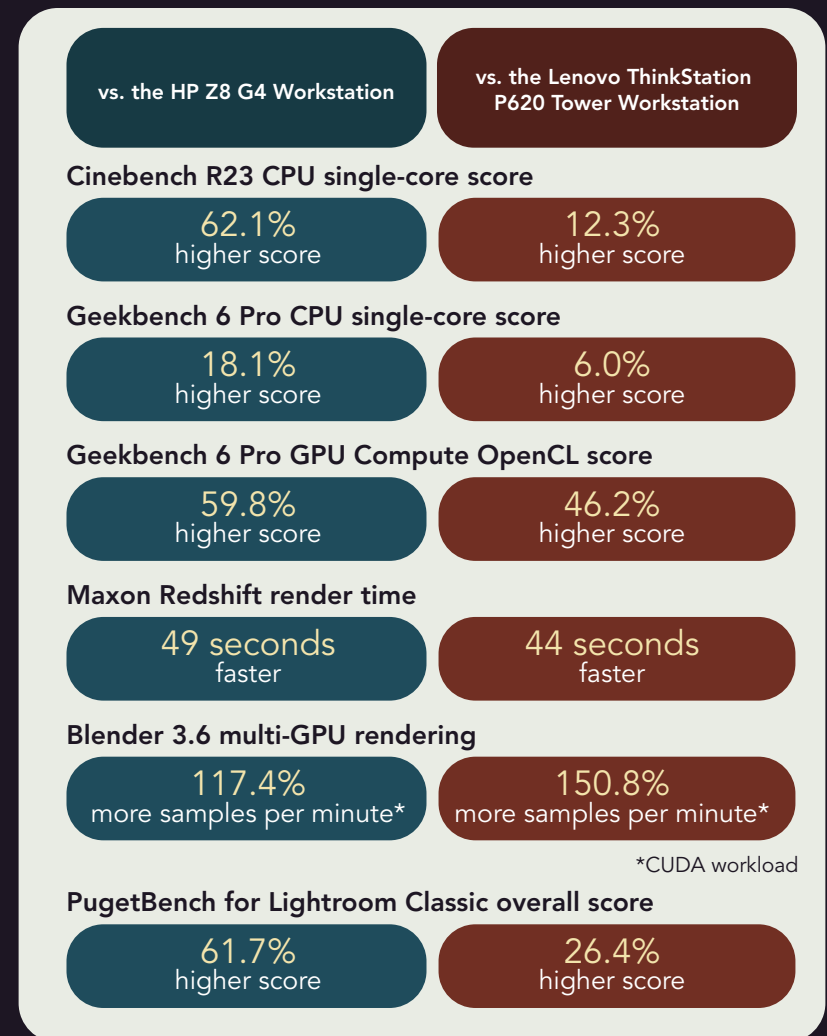
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# Accelerate performance and expedite project cycles

## What do these workloads do?

- **Cinebench R23** rates system hardware performance with Cinema 4D, a real-world 3D computer animation, modeling, simulation, and rendering software.<sup>1</sup>
- **Geekbench 6 Pro** quantifies how well a system performs CPU- and GPU- intensive tasks, such as image editing, image synthesis, and physics simulations.<sup>2</sup>
- **Maxon Redshift** and **Blender 3.6** measure 3D rendering performance, stressing a system's GPU.
- **PugetBench for Lightroom Classic** tests how well a system performs with a series of tasks in the industry-standard photo-editing application.



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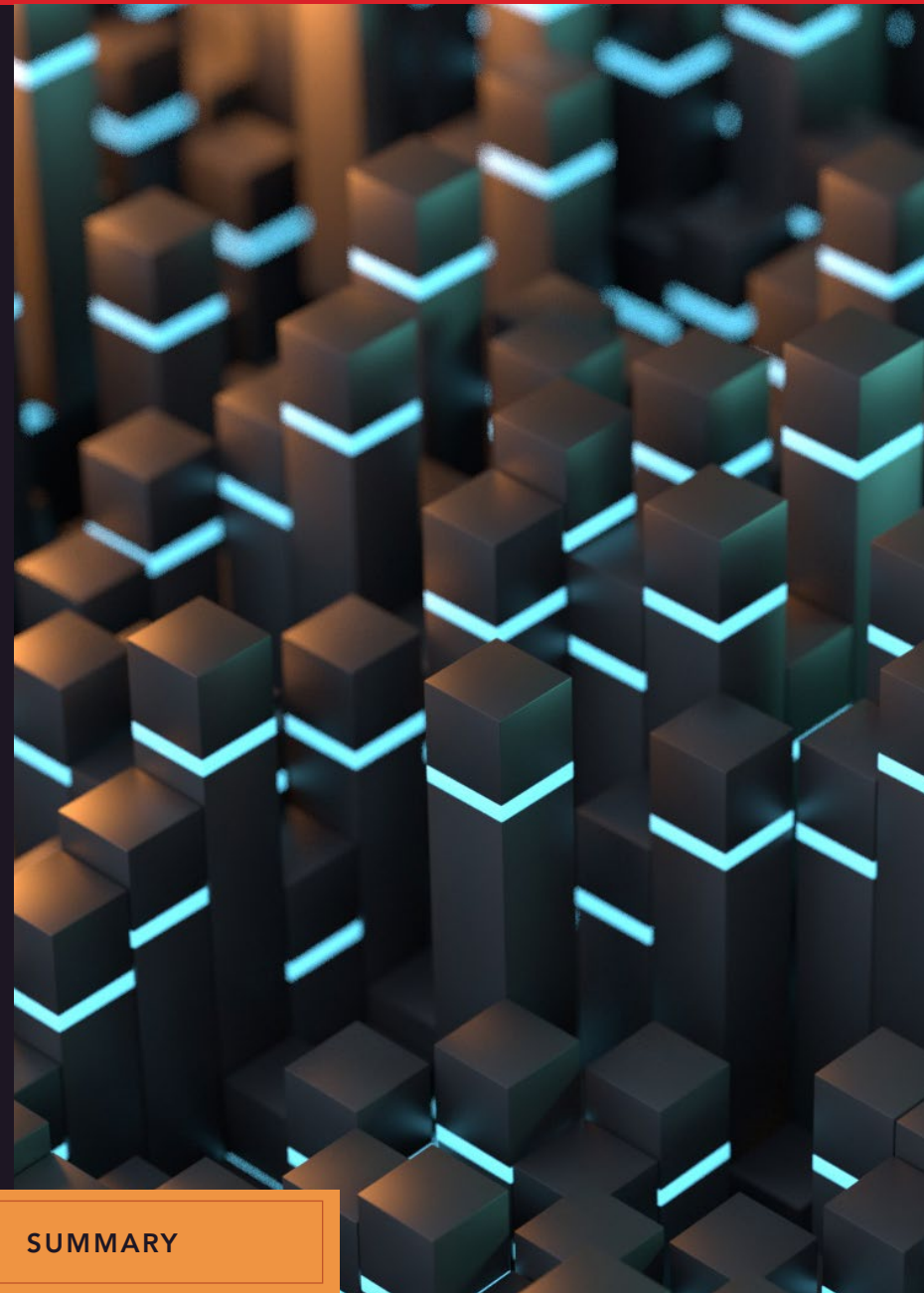
# Accelerate performance and expedite project cycles

## What could these wins mean for you?

Saving time on these workflows means creatives could spend less time waiting on technology and more time bringing their visions to life. For example, if a video team had an ambitious vision for a 3D-animated ad, an underperforming workstation might create less impressive renders or or cause them to miss the deadline. A higher performing system could help the video team quickly move their vision from the storyboard to their client's inbox without compromising quality or time.

And these test results aren't only significant for creators and editors. As technology advances, the line between creative and scientific work often blurs. The Geekbench 6 Pro tests we ran, for example, include a physics particle simulation that artists and developers might use to animate water or smoke.<sup>3</sup>

However, particle physics also has important applications in biomedicine, diagnostic instruments, power transmission, and more.<sup>4</sup> When scientific teams run particle simulations, faster workstation speeds mean less waiting on key data. The scientific process can be long and demanding, but with answers in hand sooner, physicists can move forward with important innovations—or recognize that they need to go back to the drawing board.



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# Accelerate performance and expedite project cycles

## Summary

Powerful workstations are vital for companies as they prepare for the future. With better performance under intensive creative and graphics workloads, your teams could achieve more with the HP Z8 Fury G5. With less waiting on complicated processes such as renders and simulations, both content creators and technical workers can speed project completion and deliver results they can be proud of, even under tough deadlines.

To see the results of other tests, read the reports:

**The new HP Z8 Fury G5 Workstation Desktop PC. Crunch through demanding workloads in considerably less time**  
**vs. an HP Z8 G4 Workstation Desktop PC**

Whether you're generating 3D architectural images, sharing machine-driven interactions, or working with advanced language technologies, the ultimate goal is the same: Get more done in less time.

All RightScale Technologies measured CPU and GPU performance of the new HP Z8 Fury G5 workstation to that of the predecessor, the HP Z8 Fury G4 workstation, to be happy to report that, much as in the past, we're continuing to improve HP Z8 PCs in 2024. As in the Z8 Fury G4 Workstation, the Z8 Fury G5 Workstation is 2024.

All workloads of the benchmarks used for this comparison are content creation focused. The CPU and GPU performance metrics we report aren't built for comparison. These results are also applicable to technical professionals using visualization software like AutoCAD, SolidWorks, and more. They're also applicable to generate and/or edit images work with complex datasets that include videos, images, and spreads, or run advanced simulations and visualizations.

<b>Reach new heights in 3D modeling</b> Higher Cinebench R23, Blender Benchmark 3.0, and Redshift benchmark scores	<b>Tackle larger projects</b> Higher Blender 3.0 and Redshift benchmark scores	<b>Speed development cycles</b> Faster Blender 3.0 renders and Redshift benchmark scores
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**Get results from demanding workflows in less time with the new HP Z8 Fury G5 Workstation Desktop PC**  
**Compared to a Lenovo ThinkStation P420 Tower Workstation**

Today's creative and technical professionals face complex, multi-step workflows that require speed and precision. From 3D architectural rendering to advanced simulation, the HP Z8 Fury G5 Workstation is designed to help you get more done in less time.

All RightScale Technologies, we compared CPU and GPU performance using benchmarks and several other "real-world" tasks. The results show that the new HP Z8 Fury G5 Workstation is 20% faster than the Lenovo ThinkStation P420 Tower Workstation in all CPU and GPU workloads. The HP Z8 Fury G5 Workstation is also 20% faster than the Lenovo ThinkStation P420 Tower Workstation in all CPU and GPU workloads. The HP Z8 Fury G5 Workstation is also 20% faster than the Lenovo ThinkStation P420 Tower Workstation in all CPU and GPU workloads.

These results are relevant to creative and technical professionals who do such computationally intense work as generating architectural images, running advanced simulations and visualizations, depending on hardware-dependent applications such as AutoCAD or running their complex datasets that include videos, images, and spreads.

<b>Accelerate 3D rendering and rendering</b> Higher Cinebench R23, Blender Benchmark 3.0, and Redshift benchmark scores	<b>Expedite project cycles</b> Faster Blender 3.0 renders and Redshift benchmark scores	<b>Tackle complex AI/ML workloads</b> More 3D image, Blender 3.0, and Redshift benchmark scores
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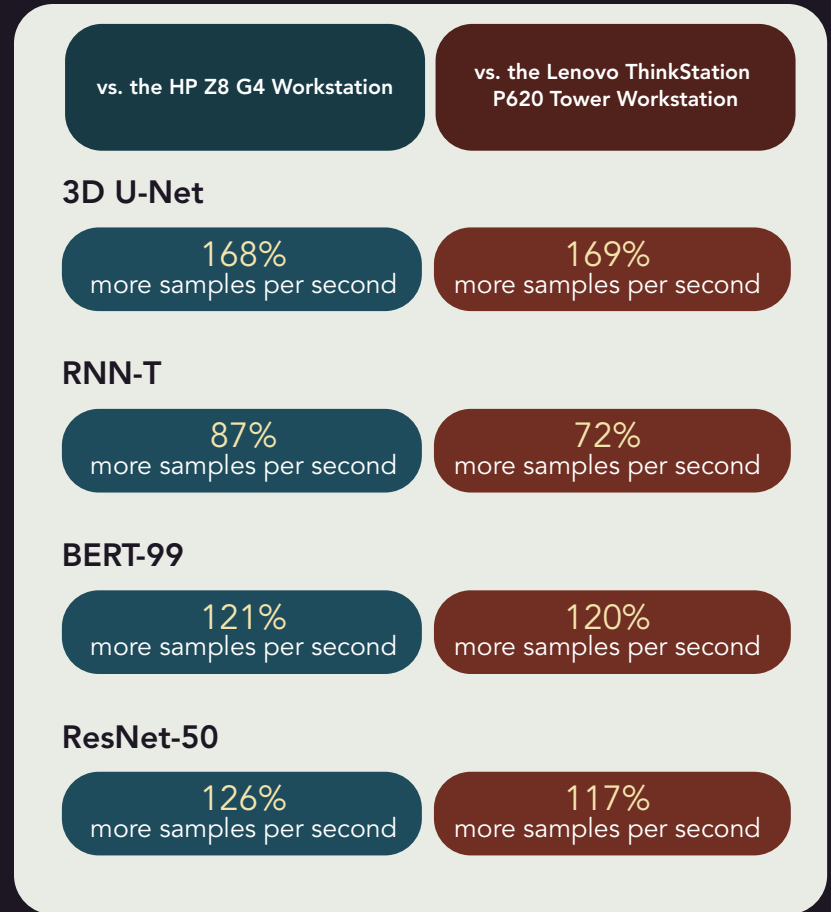
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# Tackle complex AI/ML problems

## What do these workloads do?

The medical imaging, language processing, and computer vision scenarios we ran use trained models to measure how quickly each workstation processed inputs and produced results.<sup>5</sup>

- Medical 3D imaging: The healthcare sector uses medical imaging (e.g., X-rays, ultrasounds, MRIs, and CT scans) for medical research, disease diagnosis, and drug discovery.<sup>6</sup> The **3D U-Net** model we ran “performs volumetric segmentation of dense 3D images for medical use cases.”<sup>7</sup>
- Natural language processing (NLP):
  - The recurrent neural network (RNN) aspect of NLP helps systems recognize email categories, predict stock prices, mine text, and translate different languages.<sup>8,9</sup> The **RNN-T** model we ran “recognizes and transcribes audio in real time.”<sup>10</sup>
  - The **BERT** model we ran sorts and analyzes text to make accurate language predictions and respond to conversations.<sup>11</sup> BERT-based applications include virtual assistants (e.g., Alexa and Siri), chatbots, and video captioning.<sup>12</sup>
- Computer vision: Machine learning can enable computers to “see,” identify, and understand objects and people in images and video. Computer vision applications include facial recognition, autonomous cars, production-line automation, and sports performance analysis.<sup>13</sup> The 50-layer **ResNet** model we ran “[a]ssigns a label from a fixed set of categories to an input image, i.e., applies to computer vision problems.”<sup>14</sup>



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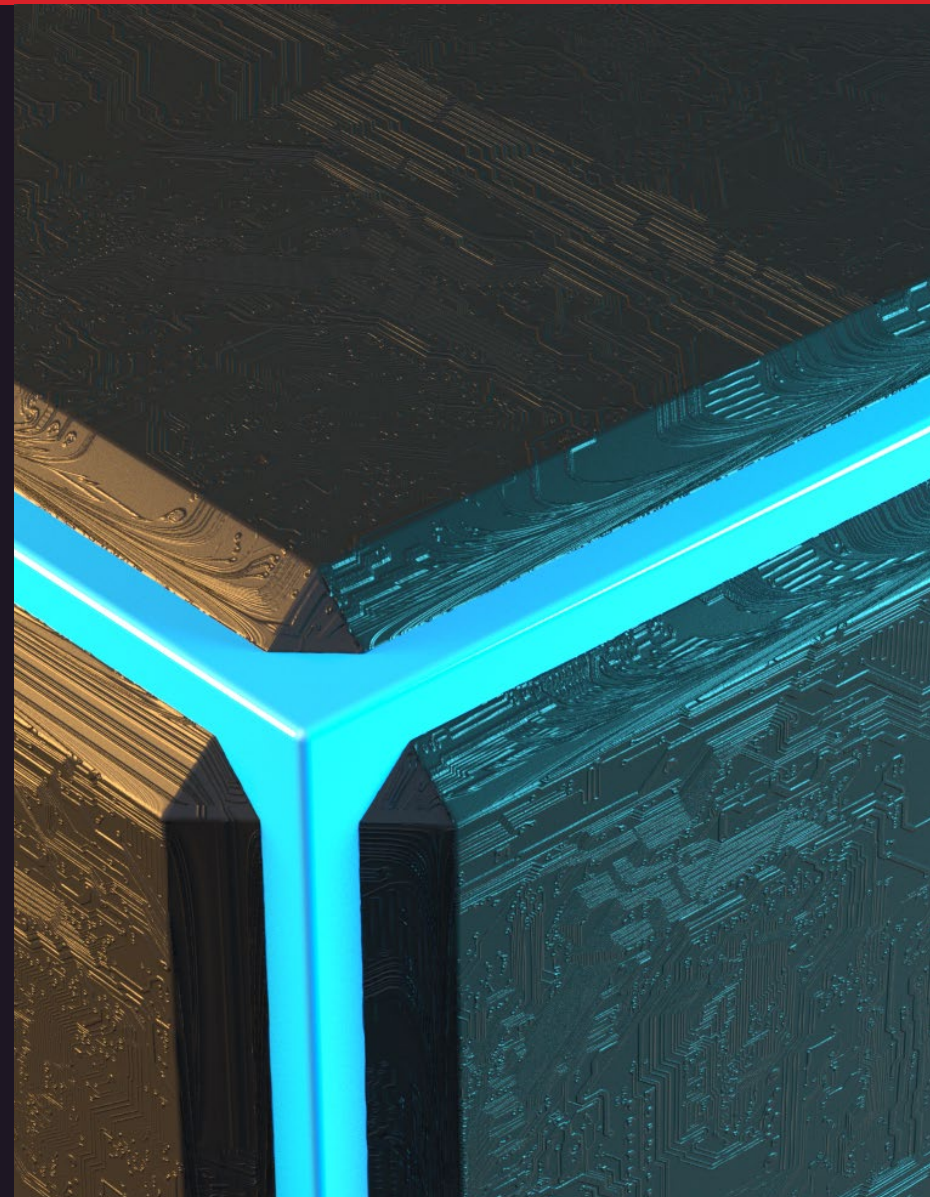
## Tackle complex AI/ML problems

### What could these wins mean for you?

The final stage in the machine learning process is inference—that's the golden time when your proven ML model has all the data, training, evaluation, and tuning your experts deem necessary for that model to make informed and (hopefully) accurate predictions.<sup>15</sup>

Business intelligence analysts, digital transformation specialists, data analysts, and scientists need powerful workstations that can nimbly crunch through stacks of proprietary and sensitive data to get useable results as quickly as possible. For example, in the medical field, saving time can save lives when it comes to making diagnoses or planning surgeries.

With a system that can process images faster, computer vision can more quickly and effectively assist medical teams in analyzing scans, detecting anomalies, and more. So, whether your organization is analyzing images or text, the sooner you have answers, the sooner you can put that data to work.



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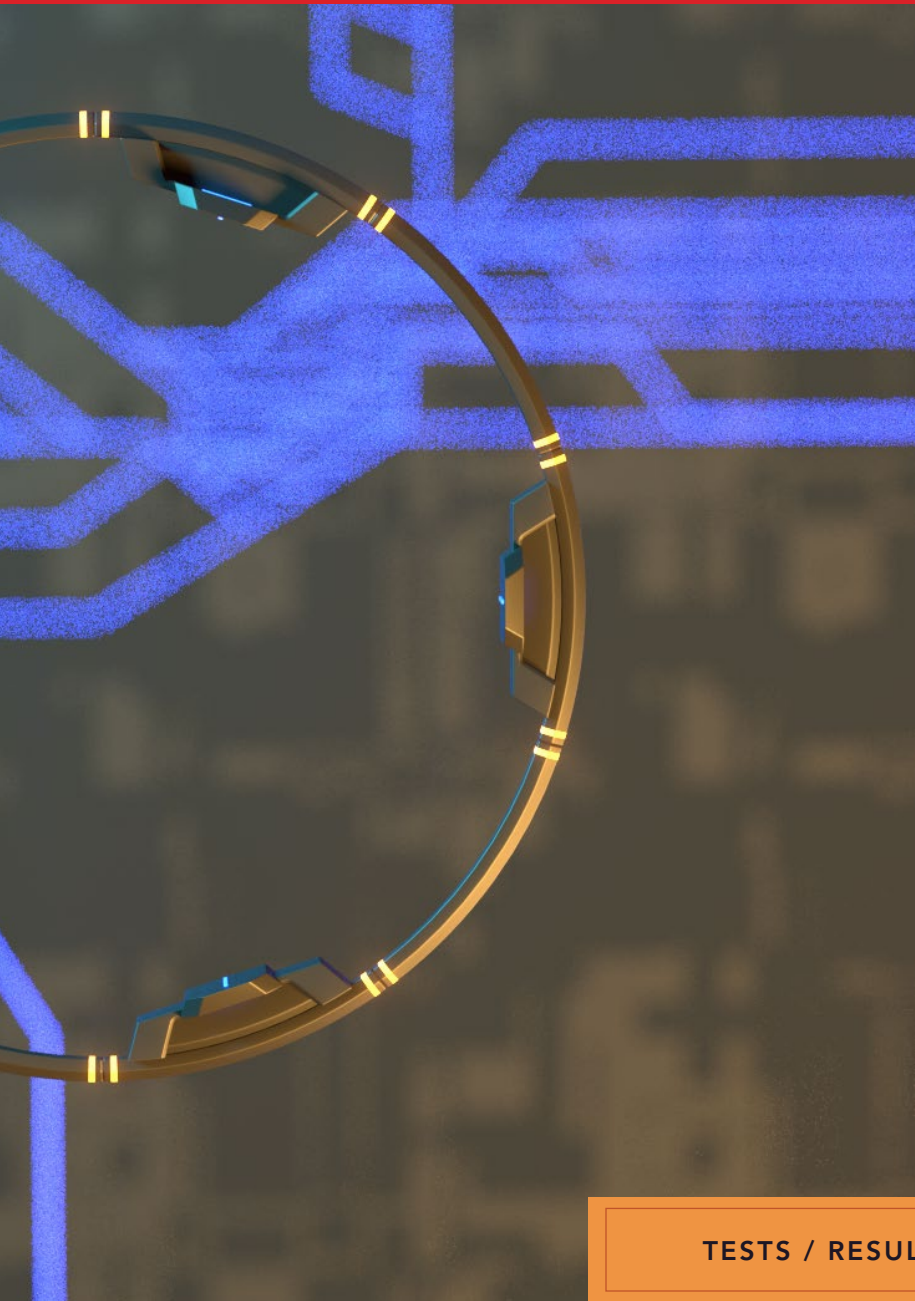
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# Tackle complex AI/ML problems

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Saving time at any point in the machine learning process can prove invaluable. Our medical 3D imaging, NLP, and computer vision tests show that the HP Z8 Fury G5 classified more samples in less time than the other workstations we tested. With these time savings, scientists, analysts, and engineers could act on valuable insights sooner, integrating them into technologies, diagnoses, or business strategies.

For more details, including configurations, read the reports:

**Get results from demanding workflows in less time with the new HP Z8 Fury G5 Workstation Desktop PC**  
Compared to a Lenovo ThinkStation P620 Tower Workstation

Today, creative and technical professionals face a common challenge—demanding workflows that require significant processing power. And, as always, time is money.

At Principled Technologies, we compared CPU and GPU performance using benchmarks and several AI/ML machine learning test cases between the HP Z8 Fury G5 Workstation Desktop PC and a Lenovo® ThinkStation® P620 Tower Workstation. We equipped both workstations with 128 GB of RAM (8x 16 GB) for our tests and configured both with the most powerful CPU and GPU we found available at the time of testing. We loaded the HP Z8 Fury G5 with an Intel® Xeon® W-3605M CPU and four NVIDIA® RTX 5000 Ada Generation GPUs, and we loaded the Lenovo ThinkStation P620 with an AMD Ryzen™ Threadripper PRO 3995WX CPU and two NVIDIA RTX A6000 GPUs with 48GB.

These results are relevant to creative and technical professionals who do such computationally intensive work as generating photorealistic images, running advanced simulations and visualizations, depending on hardware performance relative to design (CAD), or working with complex datasets that include videos, images, and speech.

- Accelerate 3D modeling and rendering: Higher Cinebench R23, OctaneBench 3 Pro, Blender 2.8, and Motion Tracker benchmark scores
- Expedite project cycles: Faster Blender 2.8 renders (also processing more samples per minute)
- Tackle complex AI/ML problems: More 3D U-Net, BEiT-0, INNT, and ResNet-50 samples per second

Get results from demanding workflows in less time with the new HP Z8 Fury G5 Workstation Desktop PC. November 2023

**Champion big decisions and gutsy moves with the new HP Z8 Fury G5 Workstation Desktop PC**  
vs. an HP Z8 G4 Workstation Desktop PC

For companies with an eye to the future, employing technical professionals with well-rounded workstations can lead to better analysis tools for trend detection, giving data resources the ability to run more processes as quickly as possible. That's in part because data volume is growing at an exponential rate. Organizations are working with big data at high speeds. The number of times they may reanalyze data to explore groundbreaking parameters is limited when they don't have adequate resources to do so in a timely manner.

At Principled Technologies, we ran medical imaging, language processing, and computer vision scenarios from the HP® Internal Benchmark Suite on the new HP Z8 Fury G5 Workstation and compared its output to that of its predecessor, the HP Z8 G4 Workstation.

These results are relevant to organizations and facilities that want to advance medical research and treatment endeavors, improve customer experiences, and achieve higher levels of productivity.

- Accelerate 3D medical image segmentation: More 3D U-Net samples per second
- Improve customer experiences: More INNT and BEiT-0 samples per second
- Identify objects and people faster: More ResNet-50 samples per second

Champion big decisions and gutsy moves with the new HP Z8 Fury G5 Workstation Desktop PC. November 2023

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For more details, read the reports:



See the video:



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