Putting product development
in the fast lane

Dayun Auto

Using Lenovo ThinkSystem SR650 servers, powered by NVIDIA® Quadro RTX™ 6000 GPUs, Dayun Auto accelerated computer-aided design and engineering workloads, bringing new vehicles to market in less time and at lower cost.

Lenovo

NVIDIA.

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Who is
Dayun Auto?

Dayun Automobile Co. Ltd. (Dayun Auto) is a major vehicle manufacturer based in Yuncheng, Shanxi Province, China. The company manufactures light-duty, medium-duty, and heavy-duty trucks from three main production bases. It also operates fully integrated research and development (R&D), sales, and service divisions.

Since its establishment in 1987, Dayun Auto has maintained a strong focus on innovation. Its vehicles take advantage of the latest advances in technology and manufacturing technique, while offering drivers leading quality, safety, and comfort. The company is also a pioneer in electric mobility: it was the first auto manufacturer in the province to develop electric cargo truck and bus models, and offers an all-electric range of vehicles.

大运汽车
DAYUNAUTO

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The
challenge

To keep driving innovation and quality in its vehicles, Dayun Auto relies heavily on its R&D division. These automotive designers and engineers count on computer-aided design (CAD) and computer-aided engineering (CAE) software to bring their ideas to life and facilitate the process of designing and refining them. This software is incredibly demanding, requiring large amounts of both processing power and storage capacity.

With R&D workload rising all the time, Dayun Auto's existing infrastructure was having difficulty keeping pace. Server CPU usage was close to maxing out during simulation calculations while storage capacity was reaching its limits, and local hard disk expansion was no longer possible.

For less intensive tasks, R&D teams used dedicated tower workstations, which were relatively costly to procure and complicated to configure. These workstations were only capable of running a single task at a time, and could not be turned off during this period, which limited business efficiency and continuity.

To compound the problem, IT teams found it challenging to effectively schedule resources on the system. This only added to lead times for critical design and engineering projects, which drove up costs and threatened to dull Dayun Auto's agility.

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"Existing computing resources could no longer meet our teams' design and engineering requirements. In particular, simulation calculations were seriously lagging behind, which affected overall project development progress."

Jiao Yu
IT Department Manager, Dayun Auto

Why **Lenovo**?

These difficulties prompted Dayun Auto to look for ways to modernize its data center and speed up operations. After evaluating offerings from several leading hardware providers, the company honed in on a solution from Lenovo.

Dayun Auto opted for a high-performance computing (HPC) solution built around Lenovo ThinkSystem SR650 servers. These feature top-of-the-line NVIDIA® Quadro RTX™ 6000 GPUs, powered by the NVIDIA Turing™ architecture and the NVIDIA RTX platform, which bring the most significant advancement in computer graphics in over a decade to professional workflows.

The Lenovo servers are validated to provide optimal performance and scalability for a wide range of accelerated workloads when configured with NVIDIA GPUs and networking.

> "Lenovo and NVIDIA are leading brands, both with a strong reputation for reliability and performance. Our hardware procurement team was confident that Lenovo and NVIDIA could deliver on our requirements."

Jiao Yu
IT Department Manager, Dayun Auto

Building a
well-balanced
solution

Dayun Auto worked closely with Lenovo to configure and tune the new HPC platform. The company has configured an eight-node Lenovo ThinkSystem SR650 CPU cluster for high-performance distributed computing, as well as a two-node ThinkSystem SR650 GPU cluster—with two NVIDIA Quadro RTX 6000 GPUs—for digital image processing. Rounding out this environment is a large-memory computing node, built on a single ThinkSystem SR650 server, used for indivisible computing tasks.

Hardware

Lenovo ThinkSystem SR650
Lenovo ThinkSystem DE6000H
Hybrid Storage Array
NVIDIA® Quadro RTX™ 6000
NVIDIA Mellanox EDR Infiniband

Services

Lenovo Deployment Services – HPC

In addition, Dayun Auto has set up separate nodes for login and management across two ThinkSystem SR650 servers. On the login node, users can submit jobs and access resources on the main HPC platform. The management node is used by the IT team to perform cluster management functions.

For storage, Lenovo helped Dayun Auto to set up a high-performance parallel file system, using a Lenovo ThinkSystem DE6000H hybrid storage array. The system is configured with dual controllers, providing mutual redundancy to avoid a single point of failure, and offers simultaneous data read-write capabilities. The storage system's total available capacity currently stands at more than 80 TB.

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"Lenovo helped us to determine the optimal configuration for our HPC environment. Their engineers were very professional in implementing and tuning the new system. Together, we have established a system with a strong balance between cost and performance."

Jiao Yu
IT Department Manager, Dayun Auto

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Results

By moving to a Lenovo HPC platform, Dayun Auto has been able to easily keep up with the ever-growing computing needs of its R&D teams. Lenovo and NVIDIA solutions deliver consistently high throughput, low latency, and strong stability—providing an ideal foundation for even the most demanding CAD and CAE workloads.

Jiao Yu, IT Department Manager at Dayun Auto, comments: "With the Lenovo HPC clusters, we experience more than 10 times faster performance than our old workstations. Our designers and engineers tend to work with very large files, so the speed improvement has been very clear."

✓ >10x faster performance for critical design and engineering workloads

✓ Streamlined scheduling and management saves time and money

✓ Days to minutes improvement in R&D test times

In addition, R&D teams are now able to schedule jobs more effectively on the Lenovo HPC platform, maximizing use of available hardware. This makes the overall design process more efficient and convenient, saving valuable time, money, and effort.

Crucially, improved performance and easier job scheduling is helping to accelerate overall product development timelines. For instance, R&D tests that previously took several days to complete now return results in minutes. It means that Dayun Auto can iterate, improve, and eventually roll out new designs faster than ever, keeping the company on the cutting edge of automotive innovation.

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"Lenovo has a reputation for excellence and our experience has proven that to be true. We have been using Lenovo solutions for several years now, and have enjoyed consistently strong performance and reliability."

Jiao Yu
IT Department Manager, Dayun Auto

How Do You Meet R&D Teams' Need for Speed?

Keeping vehicle designs on the cutting edge of quality, safety, and innovation with Lenovo and NVIDIA.

Explore Lenovo HPC Solutions