Academic Research | Poland

Supporting vital industrial and environmental research

Central Mining Institute – National Research Institute

Working with Login, a Lenovo 360 Gold Infrastructure Partner, the Central Mining Institute – National Research Institute built a powerful infrastructure based on Lenovo ThinkSystem solutions powered by AMD EPYC™ processors to run future analytics and AI workloads—helping to support vital research.

1 Customer background

Who is the Central Mining Institute – National Research Institute?

The Central Mining Institute (GIG) – National Research Institute is one of Poland's leading scientific research groups. Specializing in mining and environmental engineering topics, GIG – National Research Institute consists of multiple organizations, including the Research Center for Renewable Energy Sources and Climate, the Center for Clean Coal Technologies (CCTW+), and the Silesian Center for Environmental Radiometry.

In the coming years, GIG – National Research Institute will adopt on a two-pillared strategy: on one level, the institute aims to strengthen its expertise in core areas, such as environmental monitoring, safe resource exploitation, and raw materials processing. At the same time, GIG – National Research Institute will broaden the scope of its research in new fields, including circular economy solutions, green transformation, and nuclear energy.

GIG Państwowy Instytut Badawczy 100 lat

2 The challenge

Many of the research projects at GIG – National Research Institute harness cutting-edge technologies. For example, users at CCTW+ often rely on advanced engineering and data analytics software, while the institute is planning to incorporate AI into future initiatives. Inevitably, these emerging technologies require vast amounts of computing and storage resources to run seamlessly.

However, the existing IT infrastructure no longer provided the speed, scalability, or security needed to support modern research. The fragmented, multivendor environment offered limited performance and backup capacity, while the lack of a unified disaster recovery strategy increased operational risk.

2 The challenge

Sławomir Czaja, Head of IT at GIG – National Research Institute, explains: “Our old server and storage environment simply could not keep pace with the demands of our application workloads. To support research and innovation today and in the future, we wanted a more modern, scalable, high-performance infrastructure.”

“Upgrading our IT infrastructure was essential to **support the emerging technologies that will perform a central role in the future of industrial research**. As we look to 2030 and beyond, we aimed to create an environment that would help us to realize our wider strategic goals.”

Sławomir Czaja

Head of IT, GIG – National Research Institute

3 The solution

Building a resilient, scalable infrastructure

To design and implement the new environment, GIG – National Research Institute engaged Lenovo 360 Gold Infrastructure Partner Login, and selected Lenovo ThinkSystem servers and storage, deployed across two data centers.

In the production environment, GIG – National Research Institute now uses six Lenovo ThinkSystem SR645 servers, powered by AMD EPYC™ 7002 and 7003 Series Processors, plus an all-flash ThinkSystem DM5100F storage array. At the secondary site, the institute deployed a Lenovo ThinkSystem SR630 server plus a hybrid flash ThinkSystem DE4000H storage array. To replicate data between the two sites, GIG – National Research Institute added Veeam backup software.

Hardware

Lenovo ThinkSystem SR645 powered by AMD EPYC™ 7002 and 7003 Series Processors
Lenovo ThinkSystem SR630
Lenovo ThinkSystem DM5100F
Lenovo ThinkSystem DE4000H
Lenovo ThinkSystem DB610S Switches

Software

Veeam

Services

Lenovo Warranty Services

3 The solution

Deploying quickly, without downtime

To roll out the new infrastructure, GIG – National Research Institute worked closely with Login, as Sławomir Czaja recalls: “The whole process, from delivery to configuration and migration, took just one month, with no downtime. The Login team offered outstanding collaboration, with fast, responsive support throughout.”

Today, GIG – National Research Institute uses the Lenovo infrastructure to run a range of critical applications. These include laboratory information management systems, engineering simulation, analytics and visualization tools, environmental analysis platforms, and applications that will enable future AI initiatives.

To keep the environment running at peak performance, GIG – National Research Institute will turn to Login and Lenovo for ongoing support. “The Login team has considerable experience with our infrastructure, and often offer solutions to our queries quicker than our internal team,” notes Sławomir Czaja. “Lenovo’s support is also very efficient: their response times and the availability of spare components are excellent.”

“The Lenovo environment **supports all our key research and operational processes**, and has enabled us to improve data availability. We will continue to evolve the infrastructure—the Lenovo solutions give us the **scalability and flexibility** we need to meet the challenges of the future.”

Sławomir Czaja

Head of IT, GIG – National Research Institute

4 The results

With the Lenovo ThinkSystem solutions, GIG – National Research Institute has a modern, powerful infrastructure that will help to keep research projects moving forward. For example, the environment offers higher availability and, thanks in large part to the AMD EPYC™ processors, a tenfold increase in performance—giving researchers faster, more reliable access to research data.

In particular, the Lenovo solutions are ideally suited to running demanding analytics applications—helping teams at the CCTW+ push forward with their innovative work on clean energy solutions.

- 10x increase in infrastructure performance
- Cuts recovery times from hours to minutes
- Provides platform for AI and advanced analytics

4 The results

Reducing complexity, boosting resilience

For the IT team at GIG – National Research Institute, the combined Lenovo ThinkSystem server and storage infrastructure helps to simplify management processes. “Moving to a unified, single-vendor environment has significantly reduced operational workloads,” explains Sławomir Czaja. “We have also improved our resilience, reducing the time to run backup and recovery processes from several hours to just minutes.”

Finally, the Lenovo infrastructure gives GIG – National Research Institute the scalability required to support projects well into the future. Powered by AMD EPYC™ processors, the Lenovo ThinkSystem SR645 servers offer very high density and performance, which will enable the institute to meet the compute demands of future AI workloads with fewer physical servers.

“We will expand our computing power and storage capacity as and when we deploy new analytics, automation, and AI applications. The Lenovo environment offers us the flexibility we will need to support our growing work in industrial and environmental research,” concludes Sławomir Czaja.

“We can now conduct research projects **faster, more efficiently, and with greater security**. The Lenovo environment, powered by AMD EPYC™ processors, has given us the performance to **support our digital transformation for years to come**, as we embed advanced data analytics, AI computer vision, and large language models into our work.”

Sławomir Czaja

Head of IT, GIG – National Research Institute

Why Lenovo and AMD?

Initially, GIG – National Research Institute deployed the Lenovo servers, powered by AMD EPYC™ processors, as part of a project funded by Poland's Ministry of Science and Higher Education. Then, the institute launched a formal tender process for new storage, with selection criteria covering technical specifications, warranty, vendor experience, and pricing.

Sławomir Czaja explains: "We required at least 100 TB of all-flash storage, with efficient compression and seamless integration with our SAN environment. We also needed a robust archiving solution—covering SSD and spinning disk storage—plus sufficient resources to support reliable backup."

Login then helped GIG – National Research Institute to select potential vendors. "Lenovo met all technical requirements and stood out in terms of reliability, scalability, and cost-effectiveness. And our positive experience with Lenovo servers made it a natural choice to continue our collaboration with them," adds Sławomir Czaja.

“Lenovo's support at every stage of the project proved invaluable. Their dependable and innovative technology gave us the confidence to deliver a robust and future-ready solution to GIG – National Research Institute.”

Krzysztof Pechta

Sales Director, Login Sp. z o.o.

How can organizations support cutting-edge research?

Using Lenovo ThinkSystem solutions powered by AMD EPYC™ processors, GIG – National Research Institute drives research and innovation on key industrial, environmental, and energy questions.

Explore Lenovo ThinkSystem Solutions

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo.
AMD, the AMD Arrow logo, EPYC, and combinations thereof are trademarks of Advanced Micro Devices, Inc.
© Lenovo 2025. All rights reserved.