Powering the future of innovation in life sciences

Accelerate research and development pipelines with Lenovo AI-enhanced solutions

How technology is helping life sciences progress

Address major trends facing the pharmaceutical and medical device industry now to improve your time to market and avoid the high costs of catching up later.

Digital transformation

According to a study by McKinsey, the pharmaceutical industry ranked **second-to-last in digital maturity** when compared to other industries.[1] Yet...

80%

of life sciences organizations say digital pathology gets new drugs to market faster.[2]

Realizing the advantages of digital transformation is taking longer than it should for life sciences organizations.

Artificial intelligence (AI)

AI adoption has reached **75%** at healthcare and life sciences organizations.[3] However,

of life sciences organizations report their infrastructure is not optimized to experience all the benefits AI offers.[2]

Regulatory complexities

Pharmaceutical companies are challenged by the increasingly complex regulations of multiple agencies and governments around the world. Their equipment, infrastructure, and processes must be secure, efficient, and expertly implemented.

From research and development to clinical trials and manufacturing, Lenovo and Intel provide access to a unique ecosystem of products, services, and expertise. Equip your life sciences teams with cutting-edge technology to discover new therapies, gain faster time to insights, maintain manufacturing quality and safety standards, and deploy go-to-market launches.

Accelerate time to market for research and development

Data fuels drug development innovation, but processing this data requires a large investment in time and resources. High-performance, scalable, flexible tools are essential for accelerating time to market and boosting revenue in a highly competitive landscape. This could be why **48% of biopharma companies** say they will increase their overall budgets in the coming year, with research and development as their top focus.[4]

Are you ready for all the efficiencies of AI?

Research and development teams need AI-ready technology to accelerate time to insights and time to market.

82%

of life sciences organizations that use digital pathology are implementing AI.[2]

Nearly **70%** of biopharma professionals say using generative AI for research and discovery is a top priority, and more than **90%** say they expect generative AI to have an impact on their organizations in the next year.[5]

53%

The challenge is that 53% of life sciences organizations that have embraced these digital transformations say their infrastructure is not properly optimized for AI.[2]

A solid data and technical infrastructure foundation ready to deploy AI is a critical first step toward reaching those milestones.

Ask yourself the following to assess your organization's data readiness.

Does your organization have:

- A standardized AI platform with infrastructure purpose-built for AI workloads — offering appropriate scalability, performance, software, and networking capabilities?
- A budget for AI workloads and provisioning that is well matched to the job?
- Proper governance in place to ensure accountability, measurability, and transparency?
- Compliance policies and network security procedures for protecting proprietary data and patient information?

AI for All: Lenovo is your trusted partner in AI implementation

Trust in Lenovo's unmatched worldwide reach and AI expertise to accelerate your AI implementation.

- **Lenovo Reference Design for Generative AI** delivers a fully integrated Lenovo ThinkSystem solution that's purpose-built to implement AI.
- Lenovo has an ecosystem of AI partners and an **AI Innovators Program** to vet each company before they become a partner. The AI Innovators Program includes more than 150+ turnkey AI solutions to accelerate development and implementation.
- Four **Lenovo AI Discover Labs** help you evaluate solutions, execute proofs of concept (POCs), and optimize configurations for AI solutions.
- The **Lenovo Responsible AI Committee** helps ensure that AI is used fairly, ethically, and responsibly.

AI is an investment in people, processes, and technologies, not just an off-the-shelf product. AI implementation doesn't have to be daunting, though. Start from a strong foundation with an ecosystem of hardware, software, services, and trusted experts — and AI can be an integral part of your company's success for generations to come. At Lenovo, our goal is to provide AI for All.

Find workstations built to accelerate AI workloads

Lenovo workstations fast-track and amplify results, providing fast and reliable hardware for interpreting diagnostic images, patient data, and AI.

GPUs can accelerate the entire analytics workflow, and with NVIDIA® Parabricks® on the Lenovo ThinkStation® PX workstation, genetic variants can be uncovered in a matter of minutes instead of the hours or days a CPU-based workflow takes.

ThinkStation® PX workstation

NVIDIA® Parabricks® and the Lenovo ThinkStation PX

- Experience up to **100x** speed increases over CPU-only solutions, reducing computing costs by up to 50%.
- Analyze up to **90** whole genomes per day on a single ThinkStation PX.
- Analyze a **30x** whole human genome in just 16 minutes.
- Use the power of deep learning for customized, high-accuracy analysis with DeepVariant.
- Lenovo ThinkStation PX is the industry's most powerful workstation and offers a rack mount option.

Accelerate your workflows with the **Lenovo ThinkStation® P Series**, powered by Intel, AMD, and NVIDIA processors for maximum workstation performance.

Support your workflows on the go with the Lenovo ThinkPad® P1 and ThinkPad® P16 mobile workstations, powered by Intel vPro® with up to Intel® Core™ i9 processors, and blaze through heavy workloads.

Streamline the path from data to intelligence with edge computing

When milliseconds count, edge computing can help:

- **Improve responsiveness and reliability**
- **Reduce bandwidth costs**
- **Enhance security**
- **Decrease risk from system failures**

The **Lenovo ThinkEdge** portfolio, powered by Intel and AMD processors, is ushering in a new era of edge automation and management at scale with AI. AI applications can run in the cloud or on-premises, depending on your needs, with purpose-built server computing power closer to the source of the data.

The Lenovo ThinkEdge SE455 V3, powered by AMD processors, is the most powerful edge server on the market — delivering breakthrough efficiency to support the most intensive remote AI workloads. Coupled with Lenovo TruScale for Edge and AI services, organizations can have immediate, scalable access to next-generation AI from anywhere.

ThinkEdge SE455 V3

Boost drug development innovation

The optimization and scalability of processing genomics data drives innovation in life sciences. Scaling up genomics production largely depends on scaling high-performance computing technologies.

Performing the scope of analytics needed to gain timely, meaningful insight across populations requires speed as well as processing capacity.

The **Lenovo Genomics Optimization and Scalability Tool (GOAST)** is optimized for performance, usability, and cost — supporting the advancement of the lab of the future.

Lenovo GOAST enables clinical researchers and developers to increase lab productivity, expedite data processing, and maximize profitability by:

- Running faster sequential workflows that require high core, high I/O, or high memory
- Using computational resources as efficiently as possible without cost-prohibitive GPUs and FPGAs or other specialty hardware
- Reducing the cost of analysis and the cost-per-genome equivalent

Explore immersive molecular modeling and design

AI is helping life sciences organizations identify and develop new drugs, potential drug targets, clinical trial design and execution, and new methods for drug delivery.

Generative AI models can generate new candidate chemicals, molecules, and materials. These models, along with computational chemistry, are used to develop new materials by analyzing unstructured data as well as structured data that exists in virtual chemical databases.

Experience immersive molecular modeling and design with the Lenovo ThinkReality VRX headset and the Lenovo ThinkStation® P8 workstation, delivering maximum workstation performance for your AI workflows — including a 3D display for molecule viewing and interaction.

ThinkStation® P8 workstation

Improve patient engagement during clinical trials

Improve patient engagement, experiences, and retention during clinical trials while providing research teams with the tools needed to care for patients and deliver efficient feedback on treatment results.

Optimize clinical trials

Use AI to help choose the best patients for engagement in clinical trials. Machine learning (ML) can compare data collected on an individual to data from a group of patients. Along with the help of natural language processing (NLP), which standardizes patient records into data sets from large numbers of patients, ML can help predict the best candidates for clinical trials.

ML and NLP can also interpret volumes of study results, delivering insights early on during trials — saving valuable time and resources.

ThinkReality VRX

Create immersive experiences

From revolutionizing frontline care to enabling remote monitoring and diagnostics, virtual reality (VR) and augmented reality (AR) are breaking industry barriers. VR and AR provide a variety of benefits in medical training, diagnosis, and treatment while delivering extensive data tracking capabilities and positive return on investment.

Patients can experience improved engagement that leads to increased clinical trial retention during treatment for a variety of conditions by immersing themselves in multisensory digital worlds. These experiences can decrease agitation, frustration, anxiety, and depression in a variety of situations, including patients who have cognitive impairment or dementia and those who reside in senior living communities, veterans' homes, and other outpatient centers.

Lenovo ThinkReality VRX is a versatile, high-resolution, full-color VR/MR headset that provides a comfortable, well-balanced design for extended use sessions anywhere medical training, team collaboration, and patient care take place. The Lenovo ThinkReality VRX supports enterprise-grade security practices with a secure supply chain and manufacturing process.

ThinkSmart View Plus

Unlock the value of collaborative patient care

Meaningful interactions and collaborative relationships are essential to delivering exceptional patient care during clinical trials.

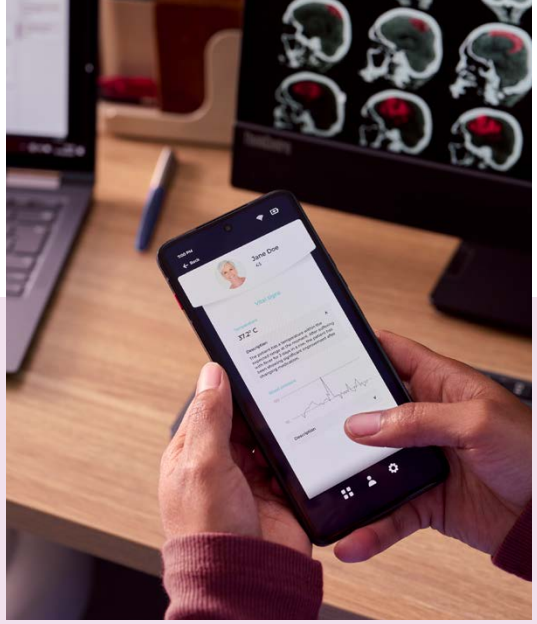
Organizations must become engaging to boost patient engagement and clinical trial interactions. Keeping patients connected with family members and their care teams is critical for success.

AI enables users to complete tasks when and where they want, often on their own devices — reducing costs, waiting times, and administrative errors while increasing patient satisfaction.

Offer interactive online portals with natural language processing (NLP)-driven chatbots to help with medication refills and other simple administrative tasks for a personalized, always-available experience.

Lenovo's industry-leading technology lays the groundwork for collaboration with versatile, flexible solutions that combine enterprise-class performance with the connectivity that clinical and research environments demand.

Lenovo ThinkSmart solutions improve collaboration spaces with immersive experiences anywhere, along with the mobile engagement opportunities offered by Lenovo tablets. Power hybrid meetings, research collaboration, specialist consultations, patient-family interactions, patient advocacy groups, and training programs.



Provide rugged and secure tech for clinical trials on the go

Keep your staff equipped to gather and share patient data in real time from anywhere.

The Lenovo **ThinkPad® T14** was designed with features that uniquely support clinical care and research. With a starting weight of under 3 pounds and worry-free, all-day battery life, the T14 gives care providers and health scientists the mobility and flexibility to work in a variety of healthcare environments quickly and efficiently.

- Improved audio and new video cameras for virtual health conferencing and remote collaboration with colleagues
- Fingerprint reader integrated with the power button
- Single sign-on enabled with RFID/NFC integrated badge reader
- **Lenovo Quick Clean** — a simple application designed for remarkably easy cleaning by disabling all input for a preferred amount of time

Portable devices like the Lenovo ThinkPad® X1 Yoga and Lenovo **ThinkPad® X12 detachable**, or Lenovo K-Series Android tablets for remote check-ins and updates, have many advantages:

- Mobility-optimized for use anytime, anywhere
- All-day productivity with outstanding battery life
- Enable gamification in clinical trials
- Processing power to handle any task and multiple applications
- Secure access to safeguard patient data for HIPAA and regulatory compliance
- Easier disinfection preparation with Lenovo Quick Clean software

Lenovo **ThinkPhone by Motorola** is the perfect companion for the ThinkPad. Boost productivity everywhere by seamlessly integrating mobile and PC experiences.

- With ThinkShield built in, ThinkPhone keeps data protected from malware and other threats with end-to-end security.
- Built tough with IP68 underwater protection, MIL-STD-810H resistance testing, aluminum frame and Gorilla® Glass Victus®

Optimize manufacturing

Increase manufacturing uptime, quality, and safety standards with smart factory tools, technology, and leading-edge insights.

The International Society for Pharmaceutical Engineering (ISPE) coined the term Pharma 4.0, envisioning a digitally mature pharmaceutical industry with higher product quality, greater delivery reliability, improved connectivity to the entire process, and better patient outcomes.

Provide smarter AI-enhanced simulations and digital twin visualizations

With advancements in simulation, digital twins, digital fabrication, manufacturing training, and generative design enhancing visualization — and AR/VR improving collaboration and design — manufacturing is seeing a shift in how products are being designed, developed, and built.

With AI and digital twins, organizations can better predict and optimize operational performance, resulting in improved processes, faster development times, and enhanced overall efficiency. The use of digital twins to improve processes can also enable medical staff to communicate and collaborate with each other more effectively no matter where they are — another cost-saving feature.

The use of AI in product development is increasing, enabling engineers to gain real-time insights for design, advance time-consuming simulation tasks, improve data management, and use data to train machine learning models to identify key design parameters.

ThinkSystem SR630

Fully realizing the promise of digital twins and AI brings the healthcare industry much closer to connected care, revolutionizing how we manage health and wellness.

Gartner Inc. predicts that by 2025, 25% of healthcare delivery organizations will include formalized digital twin initiatives within their digital transformation strategy.[6] Lenovo meets these needs by delivering an optimal high-performance infrastructure for manufacturing and offering a complete portfolio of hardware, solutions, and services for all your product development workflows and applications.

In the data center, Lenovo ThinkSystem servers, powered by Intel® Xeon® Platinum processors, provide the most versatile accelerated computing platform on the market and are purpose-built for AI — ready to perform large-scale training and execution with large language models.

Lenovo **ThinkAgile**, powered by Intel® Xeon® Platinum processors, combines Lenovo's legendary, reliable ThinkSystem infrastructure with independent software vendor (ISV) features, support, and deployment services, maximizing efficiency and scalability.

Enhance manufacturing computing at the edge

As the volume of data produced by organizations continues to increase, so does the demand on data storage.

With the increased demand for Internet of Medical Things (IoMT) solutions, mobile devices, and real-time applications, there is a need for faster processing, lower latency, and reduced bandwidth usage. Powerful edge devices are needed to process and inference data locally.

Edge computing in manufacturing provides real-time insights to optimize operational efficiency, reduce downtime, and improve overall productivity. This enables quicker response times and more autonomous decision-making at the local level.

Lenovo's ThinkEdge portfolio is designed to be networked on-premises or embedded in solutions to give manufacturers the advantage in performance, security, and scalability.

ThinkEdge SE450

With innovative fanless designs that guarantee efficient heat dissipation, ThinkEdge products support a wide thermal operating temperature range (-20°C to 60°C/-4°F to 140°F).

Bring information and computing power to the factory floor

Smarter technology and built-in intelligence give you more flexibility in the way you work, so you can optimize your production and deliver products to customers on time and on budget.

Digital signage

Keep the status of your equipment in view to help identify and solve problems quickly. Lenovo digital signage can improve efficiency while monitoring the health of your production line.

- Bring any form of digital media to life on your digital screens or point of sale (POS) with a simplified drag-and-drop tool.
- Content scheduling can be adjusted at the touch of a button, allowing for changes in scheduling and content at a moment's notice.
- Signage comes with built-in firewalls, end-to-end encryption, and features like role-based security to help keep your systems safe and secure.
- A library of intelligent widgets enables you to show information where and how you want it.
- Lenovo's cutting-edge solution management platform and world-class services enable a real-time view of health, automatic ticketing in the event of an outage, and immediate service response.

Asset tracking

Incorporating real-time locating system (RTLS) technology, our asset tracking solution automatically identifies and tracks the real-time location of objects or people. With targeted tracking and items equipped with tags and utilizing wireless transmission technologies such as Bluetooth AOA and ultra-wideband (UWB), our system provides accurate and reliable location tracking services in various scenarios.

Efficient, reliable, ruggedized workspaces

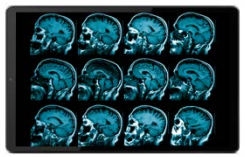
Supervise and optimize your factory operations and analyze data in real time with durability that guarantees a consistent user experience.

Combining power, performance, security, and speed, the Lenovo ThinkCentre® Tiny and ThinkStation® Tiny in One desktops pack rich features into a small, space-saving form factor with sleek cord management. Tiny offers flexible mounting options in and around the factory floor. The small footprint delivers big productivity and processing capability for data-heavy applications, along with robust security to protect critical data.

ThinkCentre® Tiny and Tiny-in-One monitor

Streamline sales and marketing with on-the-go innovation

Deploy drug launches and go-to-market strategies by providing sales and marketing teams with mobile technologies to better facilitate meetings with physicians, pharmacy procurement, and patient services.



Presentations

Provide sales teams with solutions to create and deliver mobile presentations. The Lenovo ThinkPad® T14 starting weight of under three pounds makes it easy to grab and go. Dolby Audio™ and new Dolby Voice™ AI noise suppression deliver clarity in videoconferencing as well. Enable on-the-go presentations and order signatures with Lenovo K Series tablets.

Call notes and orders

Help sales teams complete call notes from anywhere with the flexible Lenovo ThinkPad® X1 Yoga, and capture signatures with the secure ThinkPad® companion — the Lenovo ThinkPhone by Motorola.

Road-ready reinforcements

Keep your field reps, clinical educators, and mobile professionals connected and productive with Lenovo accessories including battery packs, mice and keyboard combos, and backpacks.

Enhance fleet management and device intelligence

Deliver proactive device insights and AI-driven predictive analytics for field fleet technology. Put Lenovo in the driver's seat with our Lenovo Device Intelligence (LDI) Plus Managed Services — a purpose-built managed service to save you time and money without the need to hire specialized personnel.

LDI Plus Managed Services is an offering that combines Lenovo's digital experience monitoring software with our managed services to help you monitor the health of your device fleet, remediate issues, improve internal customer experience, and optimize IT resource utilization.

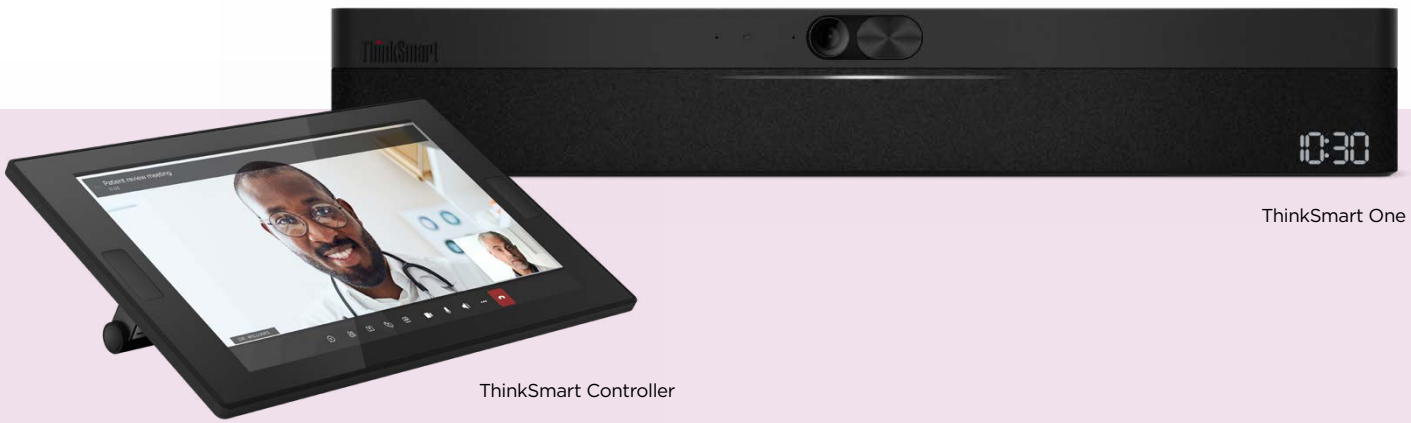
Upgrade your collaboration spaces

Lenovo ThinkSmart solutions provide flexible collaboration options for in-room consultations, research collaboration, and clinical instruction.

- Use ThinkSmart View Plus to join Microsoft Teams meetings and connect with colleagues face to face with one click — whether they're across town or across the globe.
- Create an immersive space where everyone is fully engaged and working together virtually with ThinkSmart One + Controller.
- Power smarter collaboration technology in meeting rooms of all sizes with ThinkSmart Core + Controller.

Lenovo ThinkSmart Manager enables IT operations teams to manage the complex needs of hybrid collaboration environments without adding to their workloads or requiring them to go to the office. With ThinkSmart Manager and the Intel vPro® platform, IT teams can:

- Access, update, and control ThinkSmart devices remotely, even when they're powered off or unresponsive.
- Perform bulk configuration management as well as rotate BIOS, Windows, and Microsoft Teams passwords.
- See real-time device status and register new devices with the ThinkSmart Manager Android or iOS mobile app.



ThinkSmart One

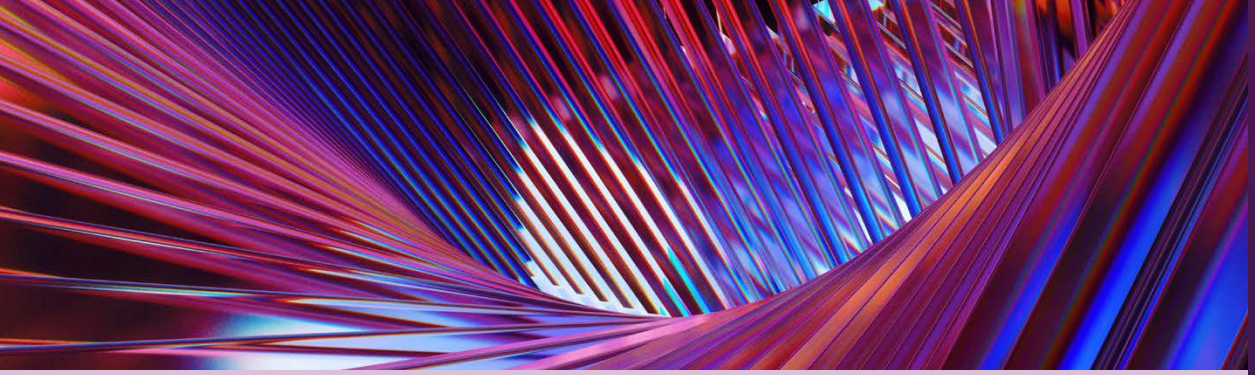
ThinkSmart Controller

Embrace the consistency and security of VDI

Lenovo virtual desktop infrastructure (VDI) can increase data security and deliver a consistent user experience across all Intel-based devices.

For IT, centralized control enables better visibility and management. This is a significant advantage not only for daily operations, but also for continuity and disaster recovery. VDI also provides easier deployment and scalability.

Together with our partners, Lenovo delivers IGEL-certified VDI solutions tailored for the unique sales and CRM needs of your organization. Lenovo also offers a range of services to help you start and scale your VDI deployment — from workshops and consulting to installation, deployment, and management.



How Lenovo empowers your digital evolution

Lenovo offers modular, scalable, end-to-end lifecycle management of services and flexible pay-as-you-go models.

Keep it all secure

Lenovo ThinkShield delivers peace of mind to your employees, leadership, and organization with our intimate knowledge of technology, our global presence, and our security professionals. Our approach solves the evolving complexity by addressing every step of a device from manufacture to deployment and beyond — wherever the work happens.

- Tracking and ensuring the integrity of the technology from manufacture to deployment and beyond
- Protecting information with solutions that use an open ecosystem of partners, evolving as security threats evolve
- Solving expertise and talent gaps with customizable global security services, making the most of Lenovo's intimate familiarity with technology

Pay as you go

Keep your life sciences teams competitive with the most up-to-date technology and infrastructure modernization. Lenovo TruScale Infrastructure as a Service (IaaS) and Lenovo TruScale Device as a Service (DaaS) offer all the power and strategic advantages of the latest data center hardware through a pay-as-you-go business model.

Lenovo TruScale's end-to-end service includes initial consultation, analysis, and configuration through ongoing assessment and maintenance services, and remote monitoring and system health to billing and administration. Pricing structures are simple and include all associated services in one monthly bill.

Protect your investments

Lenovo Premier Support Plus provides faster issue resolution, protects your investment, extends the lifecycle of devices for improved sustainability, and prevents IT issues before they become problems.

- Advanced technical support available 24/7/365
- Break/fix support for broken machines
- Single point of contact for simplified end-to-end case management
- AI insights powered by Lenovo Device Intelligence deliver proactive and predictive alerts
- Retain ROI on your technology investments
- VIP coverage for both IT staff and end users
- Reduce downtime to maximize end-user productivity

Partnering with Lenovo means buying responsibly

Support your green ambitions with sustainable packaging and reduced emissions with a global leader in sustainable technology practices.

Lenovo is committed to reducing the environmental impact of its products, harnessing innovation to increase sustainability in its manufacturing.

100%
of commercial notebooks (ThinkPad®) and desktops (ThinkCentre®) are ENERGY STAR® certified.

97%
of commercial monitors (ThinkVision®) are ENERGY STAR® certified.

Nearly 250 Lenovo products contain closed-loop PCC sourced from recycled end-of-life IT and electronics equipment.

Our **low-temperature solder** (LTS) technology benefits the environment while improving reliability, efficiency, and cost.

Many Lenovo products are also certified under EPEAT™, TCO, and 80 Plus programs.

Lenovo topped the Green500 list with the world's most energy-efficient supercomputer.

All company-owned manufacturing sites (not including new locations with less than one year of labor data) have undergone audits by independent auditors using the latest version of the Responsible Business Alliance (RBA) standards.

#8 Lenovo was ranked **#8** on the Gartner Global Supply Chain Top 25 list for 2023.

Lenovo's innovative shipping efficiencies include a low-carbon transport service to deliver IT equipment via air freight by using sustainable aviation fuel. This service upgrade helps our enterprise customers enjoy faster delivery with less environmental impact.

Lenovo Neptune™ direct water cooling delivers **95%** heat removal efficiency and up to **40%** lower power consumption, eliminating the trade-off between performance, energy efficiency, and cost savings. The captured heat can be used as a recyclable commodity for a variety of purposes, including supplemental building hot water and radiant heat systems.

Lenovo offers a circular-first approach that gives a second lease on life for IT assets

Lenovo Asset Recovery Services keep resources circulating by reusing parts when possible, refurbishing devices, and recycling outdated assets in an environmentally responsible way. Plus, Lenovo Recertified helps give IT a second lease on life.

Lenovo CO_2 Offset Services make it easy to offset the estimated carbon emissions associated with each Lenovo device across your fleet. Offsets support climate action projects verified by independent third-party organizations like United Nations, CDM, Gold Standard®, Climate Action Reserve, and more.

Lenovo Commercial Vantage application guides and encourages users to enable settings designed to help reduce power consumption and extend component lifespan.

Lenovo TruScale DaaS and **Lenovo TruScale IaaS** help avoid over-provisioning, reducing energy consumption for a lower carbon footprint and keeping your organization outfitted with the most cutting-edge technology.

Extend device lifecycle with warranty services such as **Lenovo Premier Support Plus**, Sealed Battery Warranty, and Accidental Damage Protection.

Find out how Lenovo can help empower the future of pharmaceutical and medical innovation.

Talk to your Lenovo pharma team or business advisor and visit www.lenovo.com/Healthcare

Sources

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Smarter technology for all

Lenovo