

Lenovo
ThinkReality

**Smarter
technology
for all**

Lenovo

The Future of Patient Care is Here

Transform patient care
and medical training
with cutting-edge virtual
reality and augmented
reality solutions



ThinkReality® VRX Headset



ThinkPad® P16 Mobile Workstation

Connect to an Intel
vPro®-powered device
for a world-class
healthcare solution



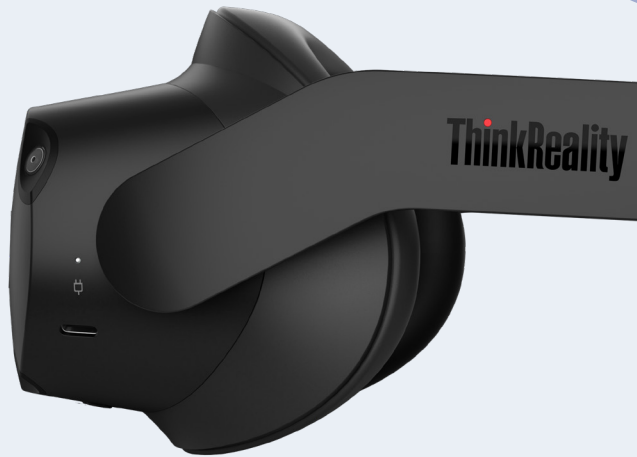


ThinkReality® A3 Smart Glasses



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Built for the Future of Healthcare

The AR and VR healthcare market is estimated to grow at a compound annual rate of **27.2% globally** between 2021 and 2028² — increasing the need for a new solution that combines an immersive experience with a PC processing solution you can trust. Pairing Lenovo's trusted ThinkPad portfolio with the Intel vPro[®] platform allows medical professionals to tap into the key benefits of AR and VR when running demanding applications.

Powering new possibilities with immersive experiences

The healthcare sector is undergoing a profound transformation to embrace the evolution of care and how it's delivered. Digital technology plays a crucial role in this journey, but only if you have a processing platform you can trust. Intel vPro[®] provides everything you need in one validated solution — empowering healthcare professionals with unrivalled performance power from anywhere.

Part of a true end-to-end ecosystem of digital devices and tools, emerging solutions such as immersive technology and 3D visualization are ushering in a new era of healthcare innovation. These cutting-edge technologies enhance the experience for patients and providers alike — all in the service of improving patient outcomes.

From revolutionizing frontline care to enabling remote monitoring and diagnostics, virtual reality (VR) and augmented reality (AR) are breaking industry barriers. With practical use and more than 2,200 clinical studies worldwide¹, 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.

The mission of Lenovo Health is to power the future of healthcare with innovative solutions. We provide people-first technology for patient-first organizations that strive to get ahead of the fast-moving changes in healthcare delivery. Our immersive healthcare solutions are designed to support the quadruple aim of improving patient and caregiver experiences, decreasing costs, enhancing the work life of providers, and increasing access to care.



Connect to an Intel vPro[®]-powered device for a world-class healthcare solution



Lenovo ThinkReality: the smarter path to immersive healthcare

68%

of surveyed healthcare executives believe augmented reality will have either a transformational or a breakthrough impact on their organization in the future³

Healthcare delivery is no longer confined within the walls of a clinical facility or imaging lab. Care providers want access to enhanced, engaging experiences for patient care anywhere, any time. Lenovo ThinkReality delivers extended reality solutions — providing measurable benefits for patient engagement and outcomes, reduced costs, and positive return on investment.

The Lenovo ThinkReality VRX all-in-one headset and ThinkReality A3 smart glasses are versatile, practical, reliable solutions that help healthcare professionals embrace immersive experiences. This technology is made possible by tethering these devices with Intel vPro[®] powered devices such as Lenovo ThinkPad[®] P16 Mobile Workstation laptops to create an end-to-end, unrivaled healthcare solution — including impressive performance, hardware-based security, and modern IT management options for simplifying support and improving the user experience.

Some of the ways healthcare organizations can benefit from immersive technology include:

Enhanced work life for providers: Clinicians can boost productivity by creating flexible, expanded personal spaces while gaining a full multimonitor experience anywhere — even in constrained areas — while ensuring sensitive content is safe from prying eyes.

Improved patient outcomes: Surgeons and radiologists can plan and prepare for complex procedures by visualizing medical imaging datasets in a virtual environment.

Expanded therapeutic approaches for patients: Patients can experience better experiential engagement during treatment for a variety of conditions by immersing themselves into multisensory digital worlds.

Increased access to care: Clinicians in areas with limited resources can collaborate remotely with colleagues and specialists with augmented reality video conferencing.



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Empower advanced diagnostics and **early detection**

Virtual reality is emerging as a powerful tool for diagnosing a range of physical and cognitive conditions, including some diseases that may be difficult to detect. Thanks to the portability of the VR technology, the diagnostic environment is not limited to a healthcare facility.

Studies are showing promising results for:

Alzheimer's: Patients who have an early onset of Alzheimer's move through 3D virtual environments differently with a reduced function of the brain region involved in spatial navigation. VR simulations could help detect the condition by testing navigation difficulties or detecting changes in brain activity with fMRI.

Mental illness: Realistic VR scenarios that are difficult to create in clinical settings could be used to test and observe responses to specific situations and experiences, or changes in the brain — helping diagnose mental illnesses or conditions such as schizophrenia, post-traumatic stress disorder (PTSD), and anxiety.

Glaucoma: Using techniques such as stimulating specific areas in a patient's visual field in a VR environment, ophthalmologists could map out the patient's visual field and detect functional deficits.



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Improve patient rehabilitation and **pain management**

Immersive technology offers a more holistic approach to pain management and rehabilitation, minimizing the need for sedation and potentially reducing the risk to medication — all while facilitating a faster and easier recovery.

- The engagement of multiple senses diverts the brain's attention away from pain signals, improving treatment time and recovery gains.
- Self-guided rehabilitation exercises and neuro-rehabilitation solutions augment hospital and home care, improving motor control, visual and auditory processing, and other functions.
- Gamification of physical therapy facilitates better learning and turns rehabilitation into fun — helping patients better adhere to their treatment.



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Boost mental health and recovery

Virtual reality exposure therapy (VRET) is an innovative, technology-based approach for improving mental health and recovery. The goal of exposure therapy is to decrease stress response intensity in situations that provoke fear or anxiety due to negative memories, thoughts, or experiences. By simulating real-life scenarios in a safe environment, care providers help patients confront situations that trigger those responses.

A systematic psychotherapeutic immersion paradigm, VRET uses multisensory VR to increase the patient's experiential engagement during treatment sessions. This modality has been proven to:

- Help an individual feel more comfortable in stressful scenarios by facing them “virtually” rather than in real life
- Create a calming virtual environment for treating stress, depression, anxiety, and other conditions
- Provide controlled exposure therapy and cognitive behavioral therapy for patients suffering from PTSD, improving their road to recovery
- Create immersive experiences for patients who have cognitive impairment or dementia and reside in senior living communities, veterans homes, and other outpatient centers — helping them unlock memories while stimulating emotions and interaction
- Decrease agitation, frustration, anxiety, and depression in a variety of situations while increasing their engagement and happiness



Spotlight on: **treating phobias**



Systematic desensitization — graded exposure to anxiety-producing stimuli — is a common behavioral therapy technique for treating phobias. Research reviews, however, show that many patients find it difficult to apply the imaginative techniques required by systematic desensitization.

For these patients, VR provides stimuli and helps them practice helpful ways of thinking and behaving to overcome their fear and anxiety — while also returning real-time feedback to the clinician to assess the treatment effectiveness and further personalize it.



VR-enabled cognitive behavioral therapy

has been shown to be effective in treating a range of phobias — from spiders and heights to anxiety disorders.

Experience immersive healthcare with Lenovo ThinkReality solutions

VR and AR fundamentally change the patient and provider experience with revolutionary possibilities. Together with Lenovo ThinkPad devices powered by Intel vPro[®], ThinkReality solutions create boundless new opportunities for forward-thinking healthcare organizations to improve delivery of care today while preparing for tomorrow.



ThinkReality[®] VRX: virtual reality and mixed reality headset

Lenovo ThinkReality VRX is a versatile, high-resolution, full-color VR/MR headset that empowers healthcare organizations to innovate care delivery.



Purpose-built for enterprise-level functionality, the all-in-one ThinkReality VRX:

- Gives clinicians the freedom to move and manipulate virtual objects for immersive training and practice scenarios
- Supports enterprise-grade security practices with a secure supply chain and manufacturing process
- Provides a comfortable, well-balanced design for extended use sessions anywhere medical training, team collaboration, and patient care take place

Key Features:

- Snapdragon[™] XR2+ Gen 1 processor with Android 12 OS
- 12 GB RAM and 128 GB of storage
- Pancake lens with 95-degree field of view
- 2280 x 2280 resolution per eye
- 70/90Hz refresh rate
- 2-camera full color HD pass-through
- 4-camera 6DoF optical tracking
- Integrated speakers, dual microphone, 3.5mm jack
- 6DoF controllers, hand tracking, headset buttons
- 6900 mAh USB-C charging, rear placement
- Wi-Fi streaming/wired connection via USB-C streaming
- Fully wipeable surfaces



Connect to an Intel vPro[®]-powered device for a world-class healthcare solution

ThinkReality® A3 smart glasses

Lenovo ThinkReality A3 smart glasses advance what's possible in healthcare by empowering clinicians with a flexible, expanded workspace that fits in the palm of their hand. Similar in size with a pair of sunglasses, ThinkReality A3 integrates advanced optics technology while providing complete privacy to the wearer.

These AR smart glasses:

- Boost productivity with a multiscreen functionality that gives healthcare professionals a multimonitor experience anywhere
- Deliver private access to patient records while powering seamless collaboration at the office, at home, or on the go
- Provide 3D visualization and high-quality visuals in an ultra-portable form factor that creates immersive AR experiences without isolation



Key Features

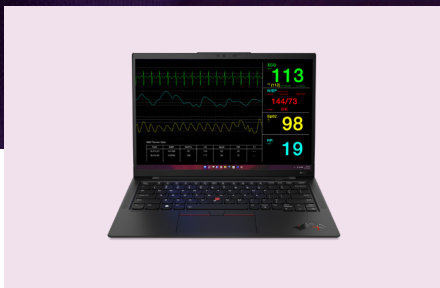
- Qualcomm® XR-1
- Dual 1080p AR displays
- Integrated speakers and microphone
- Dual fisheye cameras
- 8MP RGB camera
- USB-C connection to PC
- Lightweight (4.6 oz./130 gm)
- Ergonomic fit kit
- IP54 rating
- Lenovo Virtual Display Manager software
- Work with Windows 11 systems



Connect to an Intel vPro®-powered device for a world-class healthcare solution

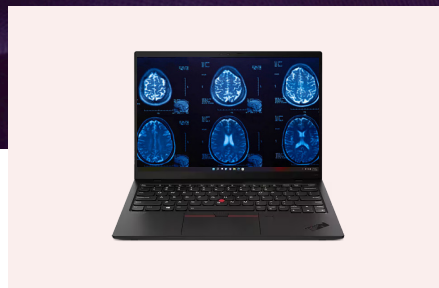
Connect to one of these Lenovo ThinkPad Laptops for a smarter healthcare solution

Connect the A3 Smart Glasses to portable, powerful, versatile solutions that are performance-engineered for patient care and support a variety of healthcare workflows with high-performance functionality — powered by the built-for-business Intel platform.



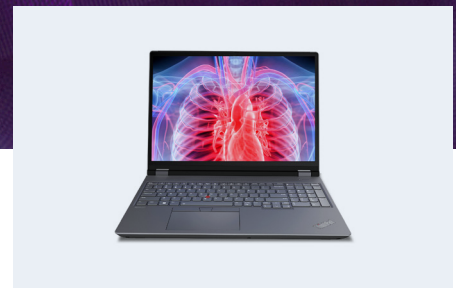
ThinkPad® X1 Carbon

- Power and portability in a premium package that delivers an impressive combination of performance, responsiveness, and battery life
- Powered by Intel vPro®, An Intel® Evo™ Design — built for what IT needs, and users want
- Includes A3 Smart Glasses support
- Running Windows 11 Pro
- Ultra-thin and ultra-light redesigned chassis
- Impressive 16:10 display
- Wider TouchPad
- Larger battery for more time unplugged



ThinkPad® X1 Nano

- Our lightest laptop ever at just 2 lbs. (1 kg) with Wi-Fi 6 for fast access to crowded public platforms and optional 4G/5G capabilities for secure access to corporate networks
- Powered by Intel vPro®, An Intel® Evo™ Design — built for what IT needs, and users want
- Includes A3 Smart Glasses support
- Running Windows 11 Pro
- Heavyweight performer with a 13-inch display
- Always-on responsiveness
- Speedy Thunderbolt™ 4
- Rapid charge technology
- 16:10 aspect ratio for more screen



ThinkPad® P16 Mobile Workstation

- Next-level performance and productivity with up to 8TB of super-fast SSD storage and 128GB of DDR5 memory
- Tether the A3 to this workstation* and revolutionize how teams use 3D models. With the additional graphics horsepower, users can access up to six screens with integrated GPU and up to eight screens with discreet GPU.*separate application required
- Powered by all-new Intel vPro® Enterprise with the latest Intel® Core™ i9 HX Series processor
- Able to support VRX
- Running Windows 11 Pro
- Latest professional NVIDIA RTX graphics
- All-new 16-inch display
- ISV-certified for professional applications like Creo® and SOLIDWORKS®



Lenovo ThinkPad laptops come with **Lenovo ThinkShield**, a converged Zero Trust, end-to-end security portfolio encompassing hardware-embedded features, software, and services, as well as Intel vPro® built-in security.



A complete healthcare solution

Designed to give healthcare organizations a boost right out of the box, Intel vPro® empowers you with end-to-end capabilities that include:

- **Platform security:** Intel vPro® and the exclusive Intel® Hardware Shield provide multilayer security that helps reduce the attack surface of a PC and assists in active monitoring against attacks without bogging down productivity due to lost performance.
- **Enhanced productivity:** Revolutionary architecture intelligently allocates workloads to the right thread on the right core based on real-time analysis, providing optimized enterprise performance every day.
- **Modern manageability:** IT can keep the modern workforce patched and protected, while stability features allow for consistent rollouts and reliable lifecycle management.

The Lenovo ThinkReality platform offers cloud- and device-agnostic solutions for healthcare deployments — providing a proven, scalable, and streamlined path from proof of concept to productivity for AR/VR applications.

- Works across diverse hardware and software so you can build, deploy, and manage content and applications on a global scale
- Equips you with powerful development and management tools, cloud and device services, and MDM support
- Includes turnkey, certified solutions for a range of common AR and VR applications



Backed by Lenovo services, such as:

- Comprehensive support in multiple markets
- Extended reality strategic consulting and deployment
- Managed support option
- Roadmap and business case development
- Content creation



Connect to an Intel vPro®-powered device for a world-class healthcare solution

Powerful, transformative solutions that deliver **boundless immersive experiences** to patients and care providers



ThinkReality® A3



ThinkReality® VRX

Ready to
experience the
extended reality
revolution?

Contact your Lenovo representative
or business partner today

Learn more at

techtoday.lenovo.com/ww/en/solutions/thinkreality
or techtoday.lenovo.com/ww/en/solutions/healthcare



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1 <https://clinicaltrials.gov/ct2/results/map?term=virtual+reality&map=#> and <https://clinicaltrials.gov/ct2/results/map?cond=&term=virtual+reality&cntry=&state=&city=&dist=&Search=Search>
2 <https://www.grandviewresearch.com/industry-analysis/virtual-reality-vr-in-healthcare-market>
3 <https://www.accenture.com/content/dam/accelenture/final/a-com-migration/r3-3/pdf/pdf-178/accelenture-digital-health-technology-vision-2022.pdf>