

In 2023 — and entering 2024 — hardware is where it's at

That was the headline from a discussion about trends in emerging technology at the Bank of America Triangle Innovation Summit. CEOs from three trailblazing firms discussed the potential of the newest, hottest technologies — and the implications for investors.

After years when advances in software stole the technology industry spotlight — and hardware was relegated to the background — developments in cutting-edge hardware are making news and attracting investor attention.

Rob Hays, CEO and president of Atom Computing, says, “When people interact with computing — their applications, their phones, their headsets — they don't really think about the hardware too much.” In fact, manufacturers like Apple specifically created products that focused on the user experience, hiding the coding and mechanics. “The industry created virtualization and container software architectures to abstract the hardware away from developers,” he says. “And I think at that point, hardware sort of fell out of favor — or at least out of sight, out of mind.”

A series of recent technological developments, combined with current global conditions, has brought hardware to the fore again for investors. Recent emerging developments include artificial intelligence (AI), batteries, and super-powerful quantum computers. Chris Hazard, CTO and co-founder of Howso, calls these “foundational transformational technologies — really hard problems we're working on here.” And those problems require a new set of tools and infrastructure in order to be developed and explored.

The importance of these technologies is clear in the current atmosphere of competing government initiatives and rising geopolitical tensions, particularly between the U.S. and China. There is nothing more foundational than chips:

“At the end of the day, chips matter. Who has control of those foundries and who has control of the IP behind that has control over an enormous amount of economic wealth and development and national security for all of us around the world.”

Rob Hays, CEO/President, Atom Computing

Key takeaways

- Hardware is back in focus due to the demand for increased computing power after developments in AI and other emerging technology.
- An important, emerging area of hardware is quantum computing, which is beginning to move out of the lab and into real-world uses.
- Experts believe at minimum, AI can be a copilot to drive the next wave of productivity, helping with rote functions and mundane tasks. But it has greater potential than that.

AI as a potential platform shift

Anyone who picks up a newspaper or turns on the news also is aware of the buzz about AI.

Jes Lipson, founder and CEO of Levitate, says, “One of the reasons people are excited about AI is thinking about it as a potential platform shift. Those sorts of platform shifts and technology only come along so often.” Is AI going to live up to the hype?

“From what I'm seeing, at minimum AI will be a really strong kind of copilot that's going to drive a lot of productivity across the world. It's kind of equivalent to a calculator or a Google search, those kinds of things that eventually you think, 'How did I live without those?'”

Jes Lipson, Founder/CEO, Levitate

Levitate's platform offers AI-powered “keep in touch” marketing for businesses to manage their customer relationships. “AI is going to be a large driver of GDP and productivity in the economy, and it's going to affect every industry,” Lipson says.

Most current AI applications are smaller-scale, with moderate impact: helping companies sort through customer data to personalize messaging, performing A/B testing to optimize marketing campaigns, or assisting healthcare operators with insurance reimbursements, for instance.

“If you're looking at it day to day, it feels very incremental,” says Hazard. “But in hindsight, it's going to look very disruptive.” He says Howso seeks to “rebuild AI from the ground up” to make it more trustworthy.

AI may never achieve some of the lofty visions being tossed about in news stories. “Probably my greatest worry is that people look back and say, ‘Hey, that was a little bit overhyped.’ It’s like the 80/20 rule, or idea that the last 1% of quality takes 99% of the effort. We don’t know for sure if throwing more hardware at making AI better — if bigger models or new techniques — will actually fully solve that or not,” Lipson says. “Will AI ever get there? I think that still is an open question.”

But these executives agree that even at its current level, AI has the potential to drive the next wave of productivity by automating routine tasks and performing them faster. “Internally for software development, we’re using it for the mundane, the low-end stuff. And that frees up the humans and their superior minds to focus on the value-added creation,” Hays says.

**“Who likes doing the mundane?
I certainly don’t. Will it disrupt a lot of jobs?
Absolutely. But on the other end, it will amplify
creativity and amplify people.”**

Chris Hazard, CTO/Co-Founder, Howso

The rise of quantum computing

On the other end of the spectrum is quantum computing, which uses the laws of quantum mechanics to solve problems beyond the capacity of “classic” computers. Quantum computing, in development by companies including Hays’ Atom Computing, is beginning to move out of the lab or theoretical phase and into real-world uses. These executives say it has the potential to help organizations move faster on big questions — discovering new drugs or helping solve formerly impenetrable problems.

Big technology users are looking for a leap ahead in computing power, the kind of advance that quantum computing may represent. “You could talk to Amazon or Google Cloud or Oracle Cloud or anyone, and they will tell you that power and space to put in all these large GPU boxes is extremely critical for them, and they just can’t afford to do it. They can’t build out the power substations and the warehouse-scale computers fast enough to go do that. It’s really just not sustainable,” Hays says.

**“So we need new hardware, new architectures.
And that’s where quantum computing comes in.
There’s a lot of new architectures that can come
in and give us orders of magnitude more
performance at lower energy levels.”**

Rob Hays, CEO/President, Atom Computing

Everyone is interested in the potential of quantum computing, and big names are investing — while the industry waits for the big “aha” moment that moves this technology from concept to reality. “As soon as that big killer app comes, everyone’s going to wake up and you’re going to know you’re there. But the problem is, you don’t know when it’s coming or where it’s coming from. I think five years from now, we’ll probably have something like that ChatGPT moment where you know, somebody does something amazing that was just never done before.”

Beyond the long-term predictions and current excitement, Hays says, “Hardware matters at the end of the day to deliver all the software and applications people learn and depend on.”

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