

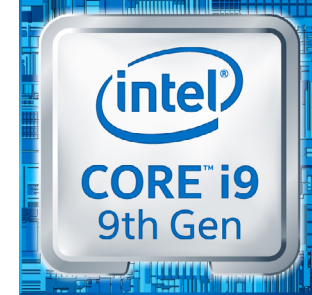
# Lenovo Workstations: Accelerating the age of AI

## Extreme performance for demanding tasks

It's been 65 years since the term Artificial Intelligence (AI) was first coined by computer scientist John McCarthy. And despite some **significant technological advancements** over that time, it's often failed to live up to the hype.

However, since the late 1990s, and especially in the past ten years, progress has gathered pace. Machine-learning algorithms **have advanced beyond all expectations**, thanks to the development of deep reinforcement learning techniques. By combining artificial neural networks with step-by-step trial and error processes, AI programmes can quickly learn the best actions possible in virtual environments in order to achieve a specified goal.

## Workflows before Workstations



Intel® Core™ i9 processor



Intel® Xeon® processor



And now, at the start of the 2020s, AI's time may finally be here. This year, for example, an estimated \$9.6bn will be invested in intelligent process automation.

In three years' time, the amount forecasted to be spent on robotic/intelligent process automation (RPA/IPA) and AI combined is \$34.2bn, with \$10bn predicted to be invested in AI alone<sup>1</sup>.

<sup>1</sup>[https://www.horsesforsources.com/white-collar-automation-ai\\_012420](https://www.horsesforsources.com/white-collar-automation-ai_012420)

## The power behind AI

So what happened to spark this progress? Put simply, smart hardware happened. The enormous improvement in computing capacity over the last few years has led to devices armed with lightning-fast CPUs and graphics cards with tensor cores (AI accelerators), capable of developing larger and more complex AI models.

How powerful are these graphics cards? To give you an idea, today's leading GPUs can run over **16 trillion calculations every second**. 16 trillion? It's hard to get across just how big of a number that is. But let's try.

Imagine you have 16 trillion banknotes. If you stacked them one on top of another, you'd have enough to build a tower to the moon and back, twice. That's a lot of banknotes.

To put it another way, let's say you have a complex machine that requires a human to make one decision every second in order to work. How long do you think it would take that worker to make 16 trillion decisions? A few months? A decade? In fact, it would take that worker an incredible **507,019 years** to make the same number of decisions that a GPU can make in a second.

Processing that many calculations requires a lot of energy, and can put significant pressure on the machine's hardware. But that's where Workstations come into their own.

Workstations are designed for **demanding applications** like AI. With more memory (frame buffer) added to the GPUs, there's less need to move data back and forth between processors and memory chips.

Computing power and reliability have been a catalyst to drive the **future of AI**. We may not know exactly where the road is leading, but the future of AI is likely to be decided by the hardware that powers it, and Workstations are making AI more accessible than ever before to organisations worldwide.

## Are you AI-ready?

"If you don't have an AI strategy, you are going to die in the world that's coming."

— Devin Wenig,  
President and CEO of eBay, 2017.

An evocative line for sure, but there's some truth behind it. With the advancements being made in AI technology thanks to tools such as Workstations, **improved processing power** and billions of research dollars, those who fall behind in terms of incorporating AI into their workflows risk being left behind.

Whether by not being able to get new products to market quickly enough, or by not being able to meet employee and customer expectations.

**Answer these questions to find out if you're ready to start or scale up your AI operations.**

### The AI basics:

- Why does your organisation need AI?
- Are you 'data literate'?
- Is your infrastructure ready?

### Becoming AI-ready:

- Can you define what processes AI will improve?
- Where are the personnel efficiencies?
- What product insights can be gained?

### The AI challenges:

- Do you have the data required?
- Do you have the expertise?
- Can you consider yourself AI-ready?

## Lenovo: Your AI partner

Platforms that can accommodate AI are not 'off-the-shelf'. Integrating AI into **your workflows** involves deep thinking about your existing technology, data, people and processes. Wherever you are on your AI journey, we'll ensure you've got the right platform in place. We'll understand your use cases, and where machine learning and AI could benefit your workflows. Then we'll help you design the perfect AI solution to fit your needs.

By working with our partners in the AI community, including start-ups, researchers and academic groups, we can give organisations access to AI platforms which can be customised, quickly deployed and are perfect for their business needs.

We're committed to investing in science that improves the customer experience and empowers them with transformative technology. Our customers have the opportunity to collaborate in **Lenovo AI Innovation Centres** so they can better understand the value for their particular use cases.

## Get in touch

If you'd like to find out if your organisation is AI-ready, speak to an expert at Lenovo. We'll run through the above questions with you, discuss your AI use cases, and ensure you've got the right AI platform in place for your workflows.

To get the conversation going, email [lhelstrom@lenovo.com](mailto:lhelstrom@lenovo.com).

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