

A futuristic digital landscape with a glowing 'AI' icon in the center, surrounded by data points, network lines, and floating document icons. A hand is visible in the lower right, typing on a laptop keyboard. The background is a dark teal with light blue and white digital elements.

How AI will revolutionise the computing experience



Understanding the AI PC

AI optimises workflows and enables greater personalisation for PC users. And we're just at the beginning as more use cases from the software community continue to emerge

Artificial intelligence (AI) is already being embedded into large-scale enterprise applications to bring step-change efficiencies into everyday workflows. But the potential for AI extends well beyond the software stack – it promises to revolutionise the capabilities and user experience for a new hybrid workforce that relies on PCs and laptops for productivity and enterprise access.

The AI PC will be your personal assistant that saves you time; it's going to enhance your collaboration tools; it's going to keep you more secure with advanced threat detection; and it's going to give you hours more battery life.

With availability of these devices set to expand rapidly in the near future, IT leaders need to understand the roadmap to and beyond the AI PC and its most important practical applications – as well as addressing key AI-related concerns.

The AI PC is here

First, what exactly is an AI-enabled PC? AI PCs are equipped with dedicated AI accelerators or cores (*see box*) – such as central processing units (CPUs), graphics processing units (GPUs) or neural processing units (NPUs) – designed to optimise and accelerate AI tasks on the device.

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Bradley Jenkins, EMEA Client
Computing Category Manager, Intel

The result is that, put simply, AI PCs can run all the different types of AI and generative AI (GenAI) workloads and applications, but with better performance and efficiency than previous generations of PCs. The end result is improved user productivity, optimised battery life, enhanced security and privacy by being run on the client device, and greater offline accessibility because the PC will not have to always rely on external servers or cloud services.

The potential applications – and challenges – surrounding AI and GenAI continue to make headlines. But cutting through all that noise is a real demand for AI-enabled solutions for the enterprise. Indeed, Gartner forecasts that [worldwide shipments of AI PCs and GenAI smartphones will total 295 million units by the end of 2024 – a huge jump from 29 million units in 2023.](#)

This means the rapid adoption of GenAI capabilities and AI processors will eventually become a standard requirement in devices.

“We’re at the tipping point of client computing,” says Bradley Jenkins, EMEA Client Computing Category Manager at Intel. “Today, the PC is more important than ever, helping people to learn, earn a living and be entertained – and here is the next step on from the PC, with AI capabilities.”

A productive, collaborative experience

The big question is, how do the benefits of an AI PC translate to the user experience?

The answer is, there is no one “killer application”. There are many potential applications, and they are personal to the profile of the user.

One example from an end-user perspective could relate to the ease of digital collaboration – essential to the modern hybrid workforce. For instance, [Microsoft Teams now has 320 million users](#) and the user experience is essential to its

What’s inside an AI PC? A quick explainer

Intel defines an AI PC as a PC that features an Intel Core Ultra processor, designed to bring AI experiences to life through a combination of CPU + GPU and the new NPU.

CPU – fast response: You can rely on the central processor unit for smaller workloads at low latency. The CPU is great for low-latency burst-type AI workloads, such as real time voice-to-text translation.

GPU – high throughput: The graphics processing unit is ideal for large workloads that require parallel processing. The GPU is suited to high-throughput activity such as accelerating creative workflows like video, photo editing or upscaling video content.

NPU – power efficiency: The neural processing unit handles sustained, heavily used AI workloads at low power for greater efficiency. The NPU is great for low-power sustained workloads, such as personal assistance, security software acceleration, or background noise cancellation.

success. But applying a background layer while on screen or using neural noise cancellation in older PCs could lead to the system freezing.

“The background layer is a sustained inference workload. So users couldn’t be as productive on a Teams conference call,” says Jenkins.

“The new AI devices have these updated components inside – the NPU, CPU and GPU – which means they can handle these types of workloads far more efficiently so the user can have a smooth, engaging, collaborative experience and be productive at the same time.”

The Intel advantage

But it’s not just the end-user that benefits from the AI PC. There are a range of capabilities of which IT departments can take advantage. For example, there is security – technology such



as Intel Threat Detection ([Intel TDT](#)) includes machine learning heuristics and anomalous behaviour detection that speed up the ability to detect malware attacks.

Intel’s new 3D performance hybrid architecture, built into every Intel Core Ultra processor, integrates CPU, GPU and NPU into a single package. This means users can benefit from new AI capabilities such as real-time language translation, automation inferencing and enhanced content creation.

There are also use cases around device discovery, endpoint device management and telemetry to help IT teams identify devices within a portfolio which aren’t as efficient as the user requires and are impacting productivity.

And importantly, despite being recognised as a leading hardware company, Intel has thousands of engineers who work with the software

developer ecosystem, to ensure their AI solutions run at their best on Intel architecture.

[Intel’s AI PC Acceleration Programme](#) connects independent hardware and software vendors (IHVs and ISVs) with Intel resources, including AI toolchains, training, co-engineering, software optimisation, hardware, design resources, technical expertise, co-marketing and sales opportunities.

“We believe there is not one killer application – but the ‘killer app’ Intel offers is choice. The difference between Intel client devices and other products in the market is compatibility. Intel Core Ultra simply works with a lot more AI-infused software applications,” says Jenkins.

Intel is equipping software developers with tools such as OpenVINO, which facilitates the optimisation of a deep learning model from a framework and deployment using an inference

engine onto Intel hardware. Additionally, oneAPI is an open standard adopted by Intel for a unified application programming interface (API) that can be used across different computing accelerator architectures.

“Those are two important tools that we’re using to equip the community to make it easier for them to optimise their software for more hardware,” says Jenkins.

“We’re working with hundreds of ISVs and software developers, whose AI applications all either deliver on the user experience, or that support IT teams.”

Dispelling the ‘AI = cloud’ myth

Many people correlate AI with the cloud. Indeed, many of the large language models (LLMs) used for GenAI sit within the cloud. But that can prove to be costly, with AI set to expand and usage predicted to grow exponentially.

In its report, *The new era of the AI PC*, Moor Insights says the AI PC will solve the growth challenges of AI applications and the challenges that cloud-only AI applications have today. This is because AI PCs can offer local performance and efficient AI computing with little to no cost to developers.

“The AI PC will not only usher the next generation of the PC platform but redefine what it means to work on a PC and how powerful it can be as a productivity platform. AI acceleration now needs to be a component of people’s PC buying decisions,” says Moor Insights.

It’s therefore in the interest of developers to push a lot of those workloads to the endpoint device.

“Software developers can develop or enhance capabilities or create new software use cases that we don’t even know about yet – and Intel has a huge programme to support this community,” says Jenkins.

Sustainability and optimising the device lifecycle

AI is dramatically improving the user experience and helping people to be much more productive and creative. But in the coming years, it will also enable greater reuse and recycling of devices, optimising the lifecycle of the device while ensuring that organisations maximise their initial investment.

“As inference or AI compute and usage grows on the PC with the advance of software applications, IT is going to have an easier time reusing AI PCs within their estates”

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That’s because IT decision-makers (ITDMs) are currently thinking about device refresh cycles. Those ITDMs are facing critical decisions about choosing which devices will be able to run the AI workloads of the future. But sustainability is also a key consideration for IT organisations when considering device refreshes.

“ITDMs are thinking about the lifecycle of the device,” says Jenkins. “It’s not just about what you can do today. As inference or AI compute and usage grows on the PC with the advance of software applications, IT is going to have an easier time reusing AI PCs within their estates, extending the life of those devices.”

Greater energy efficiency

Similarly, one of the biggest features of an Intel Core Ultra processor is its energy efficiency – it’s the most energy-efficient performance-per-watt product that Intel has brought to market.

