ARTIFICIAL INTELLIGENCE: PREPARE YOUR BUSINESS FOR THE NEXT WAVE OF DIGITAL TRANSFORMATION

AMD

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INTRODUCTION

It's happening again: A new technology is aiming to revolutionize your business. This time, it's artificial intelligence (AI).

AI will revolutionize business as we know it. Soon, companies will be able to use AI to process information better than ever before, helping them gain new insights into their customers and opportunities, improve their quality of work, and more.

And one thing seems certain: AI will only get smarter in the years to come, so forward-thinking business leaders can't afford to ignore it.

Chip designers and manufacturers are introducing processor technologies specifically to capture emerging AI capabilities. PC brands are using chipsets that target AI functionality. And operating system titans like Microsoft are joining the party because AI is a natural evolution of the technologies they've built to improve business outcomes. One of the most promising developments in this space is a new AI engine purpose-built for personal computers.

This e-book will help you understand the current state of AI and show you how AI can help your business in the years ahead.
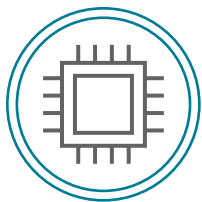
HOW DOES AI DRIVE BUSINESS VALUE?

AI has been gaining acceptance for years across multiple industries, helping banks identify fraud and doctors treat diseases. Now, AI is poised to change the way people use PCs to get their everyday work done.

AI mimics human thought patterns to automate repetitive or time-consuming tasks, freeing your people to focus their unique talents – the stuff PCs can't do – on improving your business. Thus, a savvy mix of PCs and AI can help you win the race for customers and market dominance. That said, AI isn't nearly savvy enough to match the power of a human brain, but it can be a huge help to people with too much work and not enough time.

WHICH PCS HAVE THE MOST TO GAIN FROM AI?

Laptop PCs show one of the most intriguing use cases for AI in everyday work. Why are laptops a great choice? The answer is a bit involved, but it starts with the two fundamental building blocks of computers:

1. CPU

The CPU communicates with the operating system and with applications to perform a broad range of essential computing jobs. A CPU is a serial processor, which means it performs millions of distinct commands in sequence, one after another.

2. GPU

A GPU communicates with visual software to paint images on a computer screen and manipulate them in real time. A GPU is a parallel processor, performing millions of similar commands simultaneously.

AI applications need massive parallel processing, which requires a GPU for peak performance. But this creates problems for laptops already using their GPU for graphics. Asking the GPU to handle AI apps alone can prevent it from focusing on other necessary tasks.

AMD addresses this challenge by integrating a dedicated AI engine into select new AMD Ryzen™ 7040 Series processors. This helps bolster laptop performance while leveraging AI experiences.

WHAT ARE SOME INTRIGUING USE CASES FOR AI IN LAPTOPS?

Image recognition is one of the core abilities of AI applications, which can be trained to scan the pixels in a digital image and identify specific objects like faces or animals. Now, the technology can even apply AI to live video streams.

This is one of the capabilities offered with Windows Studio Effects. AI algorithms in Studio Effects can find your eyes in a video stream and realign them to simulate eye contact with the person you're talking to.

Why is this a good idea? Think back on how we learned the nuances of videoconferencing at the height of the COVID-19 pandemic. No matter what we did, a nagging glitch made conference calls feel less, well, human.

This happened because webcams create off-center video feeds. You don't look directly into your webcam – you look at the middle of your PC screen. This feels impersonal to somebody on the other end because it's not how we talk to each other in real life, where eye contact is a vital connection.

Now, think about one of your salespeople wooing a prospect on a video feed. When the time comes to close the deal, wouldn't it be nice to simulate eye contact with the prospect?

Here's another video-collaboration scenario that Studio Effects enables: Let's say you're in the home office and you need to have a real-time conversation with a manager on a production line in your factory.

The production manager must move around to help show what's going on in the production environment. Normally, you'd need a camera operator to follow the manager around.

But Studio Effects creates an alternative: It can follow your manager around and keep reorienting the camera in real time to keep it centered on the manager.

Another option: Perhaps you're pitching a new product to prospects a thousand miles away. The AI algorithm could free your presenter to walk around the room, point to visual aids, and even introduce other people into the conversation.

These scenarios sound cool, but there's a hitch: To manipulate the digital data in a live video feed, AI algorithms consume mass quantities of processing and battery power. With a conventional laptop, you're apt to overload your processors and rapidly run your battery down.

A more future-focused laptop processor architecture divides computations into the three components outlined earlier: A CPU for general calculations, a GPU for graphics, and an AI engine for applications that lean heavily on machine learning, neural networks, and similar technologies based on learning algorithms.

Select AMD Ryzen™ 7040 Series processors with an AI engine follow this model, optimizing AI functionality in laptops without overtaxing the CPU and GPU. AMD Ryzen™ AI[1] is a technology built into the new line of AMD Ryzen™ 7040 Series processors. It includes the world's first dedicated AI hardware in x86 processors.[2]

WHAT ELSE CAN AN AI ENGINE DO FOR MY BUSINESS?

Just about any application that benefits from learning algorithms, from image editing to biometric identity verification to automated writing tools, could most likely start using AI engines on PCs. AI emulates human patterns of thought and learning. This helps you analyze vast volumes of data and use advanced mathematics to automate decision-making in areas where it can improve outcomes.

AI can transform the way you do business with a mix of machine learning (ML) and deep learning (DL). ML engines create applications that teach themselves to be more accurate over time. They do this via neural networks inspired by the pattern-matching capabilities of the human brain. An ML application trains a neural network by giving it a large volume of correct information, such as photos of people or buildings.

The application then compares new data to the training data and tries to predict whether the new data matches the training data. Humans tell the application when it gets things wrong. This feedback helps the application improve accuracy and avoid mistakes, which in turn helps the app learn to become more accurate over time.

DL, on the other hand, is a subset of ML that learns to improve outcomes without human intervention. DL applications feed massive volumes of data (such as all the music on a streaming service) into a deep neural network. The deep neural network then creates new data classifications to help people draw conclusions from patterns hidden deep in the data. DL makes itself more useful by figuring out how to draw more accurate inferences from the data it analyzes.

Still, there's good news here: Studio Effects suggests Microsoft's operating system designers trust that application developers will see the power of AI engines. Thus, it's reasonable to expect more developers to take their cue from Microsoft and start supporting AI engines.

Soon, your staff will be able to use AI to automate everyday tasks, eliminate manual processes, and devote more human brainpower to wooing customers, improving products, and outdistancing competitors.

You'll just need to make sure your next laptop is ready for an AI-powered future.

1. Ryzen™ AI technology is compatible with all AMD Ryzen™ 7040 series processors except the Ryzen™ 5 7540U and Ryzen™ 3 7440U. OEM enablement is required. Please check with your system manufacturer for feature availability prior to purchase. GD-220.

2. As of May 2023, AMD has the first available dedicated AI engine on an x86 Windows processor, where 'dedicated AI engine' is defined as an AI engine that has no function other than to process AI inference models and is part of the x86 processor die. For detailed information, please check: https://www.amd.com/en/technologies/xdna.html. PHX-3a.

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