

# Overcome growing energy demands in data centers



## Industry forecast

“Generational growth” is how analysts are describing the rate at which energy use is increasing<sup>1</sup> to meet power-hungry needs of big data. IDC expects global data center electricity consumption to more than double over the next three years with a CAGR of 19.5% and reaching 857TWh in 2028.<sup>2</sup>

Artificial intelligence (AI) is expected to be a huge contributor to the growth, expanding to 20% of total energy usage<sup>1</sup> by the end of the decade.

Across every industry, teams are rushing to configure their servers to prepare for the skyrocketing energy requirements of AI and other next-gen technologies.

Examples of industry challenges that require new and powerful server solutions include:

- **Financial services:** Real-time analytics, high-frequency transactions, compliance, and accelerated analytics for risk and fraud management.
- **Healthcare:** Real-time patient monitoring and diagnostics, AI-driven predictive analytics, rapid video analytics for imaging technologies, and secure storage for sensitive patient data.
- **Software-as-a-Service (SaaS):** Low-latency user experience, quickly scalable platforms, real-time analytics, AI, machine learning (ML), and high-performance computing (HPC).

One of the simplest ways to help address these challenges is through memory and storage. Adjusting memory and storage can have two benefits. First, careful selection can help reduce server power consumption, and second, they can offer performance improvements that help drive overall efficiency.

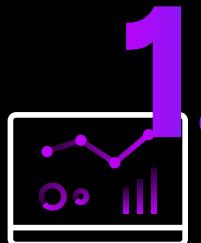
Choosing energy-efficient memory and storage can reduce total cost of ownership (TCO), improve the return on investment (ROI) on your server deployments, and help make your business more scalable and sustainable.

# Power trends

## Three data center power trends

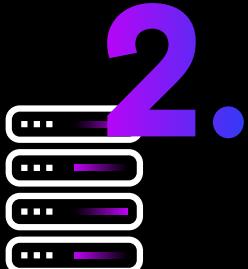
Data centers are racing to keep up with the demands of dense computing workloads like HPC and AI. These advancements, however, come with significant energy challenges.

While power usage effectiveness (PUE) has plateaued after a decade of steady improvement, the increasing density of servers is creating new pressures on infrastructure and energy efficiency.



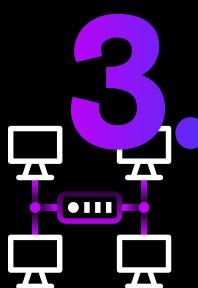
### PUE has plateaued<sup>3</sup>

After more than a decade of consistent improvement, average PUE in data centers leveled off in the mid-2010s, remaining steady at around 1.5 to 2.0. However, industry leaders such as Google have achieved PUE values as low as 1.1<sup>4</sup> in recent years, setting new standards for energy efficiency. This disparity may reflect aging infrastructure in many legacy systems, as well as diminishing returns from traditional efficiency measures such as blanking panels, containment systems, and variable frequency drives.



### Rack power is increasing<sup>3</sup>

Over 80% of data centers report rising rack power density, with about one-third describing this increase as “rapid.” As workloads grow more resource-intensive, data centers are expanding their capabilities with racks that can handle higher power loads.



### Business applications are the densest<sup>3</sup>

After more than a decade of consistent Although AI continues to dominate the headlines, the densest deployments in data centers are still for business-critical applications and HPC. This may shift in coming years, but for now, data centers are continuing to rely on infrastructures that have been developed to support business and HPC, leaving room for further development as AI scales.



# Server Solutions

## Energy-efficient memory and storage solutions

Micron prioritizes energy efficiency to help businesses like yours find server solutions that are scalable and sustainable. Below, explore some of the options you can use to right-size your servers and hit your targets for power consumption.

### High-performance Micron® 9550 NVMe™ SSD

The Micron 9550 NVMe SSD balances high-performance capabilities with superior energy efficiency, making it ideal for next-gen workloads such as AI training and tuning.

#### [Learn more about the 9550 NVMe SSD](#)

Compared to competitive high-performance SSDs, the 9550 offers:

**76%** better power efficiency<sup>5</sup>

**81%** less energy used for data transfers<sup>5</sup>



**29%** less energy used for AI training systems<sup>6</sup>

### Mainstream Micron® 7600 NVMe™ SSD

The Micron 7600 NVMe SSD is the answer for AI inferencing.

#### [Learn more about the 7600 NVMe SSD](#)

One of the most advanced, highest performing SSDs on the market:

**23%** higher with 76% better 99th percentile latency<sup>1</sup>

**79%** better than competing Gen<sup>5</sup> mainstream SSDs<sup>1</sup>



### Mainstream Micron® 7500 NVMe™ SSD

Micron's 7500 NVMe SSD is designed to support a wide range of mainstream workloads with reliable, efficient storage.

#### [Learn more about the 7500 NVMe SSD](#)

The power-efficiency and mainstream reliability of the 7500 make it a good choice to upgrade legacy servers:

**30%** power savings compared to legacy interfaces<sup>7</sup>



## High-capacity Micron® 6550 ION NVMe™ SSD

The Micron 6550 ION NVMe SSD combines massive capacity with strong performance and power efficiency to tackle the most data-intensive workloads.

### Learn more about the 6550 NVMe SSD

The 6550 stands out versus other competitive 60TB SSDs by offering:

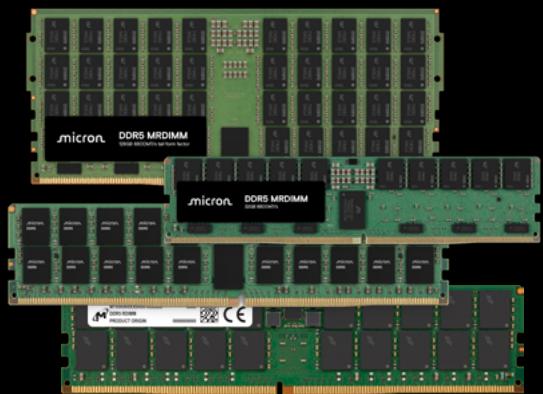
**20%** less power usage<sup>8</sup>



## Next-gen Micron® DDR5 Server DRAM

Built with integrated power management circuits (PMICs) to reduce power consumption and costs, Micron DDR5 is the ideal solution for businesses seeking sustainable, scalable memory.

### Learn more about the DDR5 Server DRAM



## Find your fit

### Your trusted partner for purpose-built solutions

Micron's experts can become an extension of your team to help you improve your systems, from cloud to edge. We collaborate with businesses at test labs around the world to design purpose-built solutions tailored to your unique needs. Addressing the unique needs of your industry, your deployment, and your specific use cases and workloads, Micron's experts can help with every step of your SSD and DRAM selection and configuration.

See how Micron is solving industry-specific data challenges:

[Get started at microncpg.com/serversolutions](https://microncpg.com/serversolutions)

1. Generational Growth: AI, data centers and the coming US power demand surge | Goldman Sachs.

2. IDC Analyst Brief, sponsored by Micron, Datacenter Modernization in the Capital Markets Delivers Speed, Scale, and Security, doc #TBD, March 2025Uptime Institute Global Data Center Survey 2024 | Uptime Intelligence

3. Data Centers Efficiency | Google