



IBM **Power**

# IBM Power servers

Engineered for agility

Modernize with an agile hybrid  
cloud experience

**July 2022**  
Client Edition



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**IBM® Power® servers are built for business agility, data protection and unmatched performance.**

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# Why choose IBM Power?

As organisations digitally transform, they are prioritising cybersecurity and efficient scaling of core applications. IBM Power servers provide an agile hybrid cloud experience, enabling you to meet security challenges and modernise in place.

With IBM Power, you can release your full potential and respond faster to new business demands. And with the new Power10® family of servers, you can benefit from new levels of performance, scale without increasing energy use or footprint, and protect your data from core to cloud.

## New Power10 is designed for your needs



### Meet security challenges

Implement a holistic, zero trust, multi-layered approach for your security strategy.



### Extract insights faster

Streamline AI with enhanced in-core inferencing capability in every server.



### Ultimate uptime reliability

ITIC has rated IBM Power the most reliable server for 13 years running.<sup>1</sup>



### Agile hybrid cloud

Scale and protect operations across hybrid cloud, while reducing your data centre footprint.



### Long-term sustainability

Lower energy consumption for a smaller carbon footprint.<sup>2</sup>



### Scalability and Performance

Run more transactions per second vs comparable systems and configurations.<sup>3</sup>

IBM Power servers →

Why IBM Power? →

**“With Power10, IBM continues to push enterprise computing toward a sweet spot where the best of all worlds come together”**

Peter Rutten, Research Director, IDC<sup>4</sup>

<sup>1</sup>ITIC (April 2020). Global Server Hardware, Server OS Reliability Report.

<sup>2</sup>IBM (January 2021). [Lowering TCO with Linux on IBM Power Systems.](#)

<sup>3</sup>IBM (May 2021). [Cost advantages of running Red Hat OpenShift on IBM Power Systems.](#)

<sup>4</sup>IDC (Sept 2021). [The Sweet Spot of Modern Enterprise Computing.](#)

# Seamless hybrid cloud

## Securely and efficiently scale Power workloads across hybrid cloud.

IBM Power provides the infrastructure foundation to securely and efficiently scale AIX®, IBM® i, Linux®, and modern cloud-native applications. It helps you bridge traditional applications to new cloud environments, without forcing them to change the underlying platform.

Couple that with flexibility to deploy applications into a public or private cloud, plus consistent tools and processes, and you have the ideal platform for digital transformation.

### IBM Power Virtual Server

delivers an infrastructure-as-a-service (IaaS) experience in an environment co-located with the public IBM Cloud

[Learn more](#) →

### Red Hat OpenShift

is the hybrid cloud, enterprise Kubernetes container platform designed to help you build and deliver better applications, faster

[Learn more](#) → [Data sheet](#) → [Read the Forrester analysis](#) →

### Red Hat Ansible

provides the foundation for DevOps automation of hybrid cloud operations for AIX, IBM i, and Linux environments

[Read the tutorial](#) → [Read the blog](#) →

## Flexible consumption for IBM Power

Benefit from flexible, pay-for-use consumption of your private server with flexible consumption for IBM Power. Costs are optimised with dynamic delivery of one or more server resources to meet changing workload demand and business needs. IBM® Power Virtualisation Centre (PowerVC) provides comprehensive virtualisation management.



### Pay for use by the minute

of RAM and CPU usage. Get real-time and historical usage monitoring.



### Low acquisition cost

Choose the level of up-front investment, starting as small as 1 core and 256 GB.



### Optimise with resource pools

Only IBM Power lets businesses share capacity commitment across a pool of resources, for maximum utility.

[Learn more](#) →

[IBM PowerVC data sheet](#) →

[Flexible consumption guide](#) →

# Application modernisation

**Take an approachable, low-risk path to innovation that doesn't disrupt existing apps.**

IT strategies are shifting to serve an always-on world. Modernising applications means updating them so they can be maintained, extended, and deployed in a way that meets future and current needs. IBM Power enables you to modernise incrementally, so you can build new cloud-native services that coexist and connect with existing enterprise applications and investments.

## Drivers and benefits

### **Accelerate digital transformation**

to find new ways to engage and retain customers

### **Create a superior developer experience**

to unleash creativity and build amazing experiences

### **Deploy applications anywhere in the hybrid cloud**

to increase choice and flexibility



## Four actions to modernise on Power

01

**Assess current applications,**  
identifying traditional, composite, and cloud-native apps

02

**Modernise incrementally**  
with a low-risk road map and proven patterns

03

**Embrace a DevOps culture**  
to automate pipelines

04

**Deploy and operate**  
traditional and cloud-native apps seamlessly for maximum flexibility

[Read the field guide to modernising on Power →](#)

## Accelerate with IBM Cloud Paks

IBM Cloud Pak®s are pre-built, AI-powered software for hybrid cloud that help you accelerate modernisation, automate complex processes, optimise employees' time, and create more secure customer experiences.

IBM Cloud Paks on IBM Power servers make it easy to modernise with containers, co-locate workloads and data to improve speed and consistency, and extend IBM Power platform benefits across the entire stack – including for Kubernetes containers – wherever they go.

[Read the guide to navigating your hybrid cloud vision →](#)

# Reliable, secure and sustainable

Maximise availability and reliability. Reduce your carbon footprint. Protect data from core to cloud.

## Persistent security

Meet security goals across public and private clouds with no performance impact.

### Protect data with transparent memory encryption

no additional management setup and no performance impact.

### Stay ahead of threats

with support from quantum-safe cryptography and fully homomorphic encryption.

### Securely isolate workloads in cloud deployments

with confidential computing features, including enhanced CPU isolation and in-core defence against attacks.

[Read the IBM PowerSC data sheet](#) →



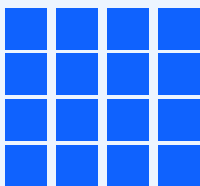
# Scalable, sustainable compute

Do the same work with less infrastructure. IBM Power10 can cut carbon footprints in half compared to older Power systems, and IBM Power continues to be the most reliable server in the industry, driving greater sustainability.<sup>5</sup>

**52%** lower energy consumption for the same workload on Power E1080 vs Power E880C

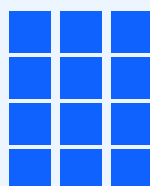
**33%** lower energy consumption for the same workload on Power E1080 vs Power E980

IBM Power8



10,376 watts

IBM Power9



7,478 watts

IBM Power10



5,000 watts

## Making the most reliable server even better

IBM Power servers address the biggest factors affecting system reliability.

### Maximise memory availability:

The Open Memory Interface (OMI) in Power10 delivers 2x better RAS than industry-standard modules.<sup>6</sup>

### Minimise outages:

Power servers historically offer at least 25% less downtime vs comparable high-end servers.<sup>7</sup>

[Read the ITIC server reliability report](#) →

<sup>5</sup> ITIC (April 2020). [Global Server Hardware, Server OS Reliability Report](#).

<sup>6</sup> Based on IBM's internal analysis of the IBM product failure rate of DDIMMs vs Industry Standard-DIMMs

<sup>7</sup> Based on "ITIC 2020 Global Server Hardware, Server OS Reliability Report", April 2020



# Performance and scale for critical applications

IBM Power servers and solutions are built to scale core enterprise applications securely and efficiently.

Modernise mission-critical workloads that run on AIX, IBM i, and Linux. Respond quickly to new business demands with efficient scaling. Deduce new insights faster with enhanced in-core AI inferencing – no specialised hardware required.

## SAP HANA

Beat the S4/HANA® migration deadline and deliver the resilience, flexibility, and scalability that SAP HANA® demands. Provision faster and scale affordably, up to 24 TB or out to 16 nodes. Leverage IBM Cloud® and benefit from the lowest cloud vendor costs.<sup>8</sup> Maximise uptime with the unsurpassed reliability of IBM Power.

### Audi AG

Premium car maker Audi used IBM Power to drive its electric car projects with 66% fewer servers and SAP HANA analytics running 100x faster than typical speeds.

[Read case study](#) →

### Electrolux

Appliance specialist Electrolux supported its growing SAP HANA workloads, reduced DR costs by 30%, and accelerated recovery times by 75% with IBM Power servers.

[Read case study](#) →

### Honda Pakistan

By moving to real-time insights with S/4HANA on IBM Power, Honda accelerated its parts planning processes by 80% and projected a 15% increase in dealership revenues.

[Read case study](#) →

**“Using Power, the cost for HANA landscape just drops by 50%”**

Helge Tautorat,  
Director Global Infrastructure,  
Richemont

[Solution guide](#) →

[Read the Forrester TEI report](#) →

[Why IBM Power?](#) →

[Achieve competitive advantage](#) →

<sup>8</sup>Disclaimer: Information based on CIO Dive article, November 2019: “AWS rolls out unique cost-control option, but vendor remains pricey”. <https://www.ciodive.com/news/aws-savings-plan-IaaS-EC2-Fargate/567173/>

# Oracle

Optimise Oracle® licencing costs, deliver hybrid cloud innovation, and break out of the lock-in conditions that solutions such as Oracle Cloud enforce. Improve availability with the zero-downtime updates and enterprise support of IBM AIX. Reduce costs with excellent per-core performance and low-cost IBM Support Services.

## Fawry

Leading Egyptian bank Fawry used AI on IBM Power to understand its customers more deeply and sustain rapid growth. The solution halved processing times and delivered the performance needed to extract new insights.

[Read case study →](#)

## The First MicroFinance Bank Limited Pakistan

FMFB-P met rural communities' banking needs using Oracle Database solutions on IBM Power, delivering a 48-hour loan approval for customers and achieving a 50% cost saving on Oracle licences.

[Read case study →](#)

## DNA

Finnish telecoms provider DNA gained more than three hours a day and leapt ahead of the competition by running Oracle on IBM Power. DNA saved 66% in Oracle licensing costs and reduced its data warehouse footprint by 80%.

[Read case study →](#)

## Cloud-native applications

Minimise complexity and accelerate transformation. Modernise at your own pace, while extending the value of existing applications. Scale cloud apps efficiently, with power to run 3.1x more containerised services versus a comparable x86 system.<sup>9</sup>

## Enterprise AI

Infuse AI directly into core applications and databases on AIX, IBM i and Linux, close to where data resides, across the full range of Power environments. AI inferencing runs “in place” with four Matrix Math Accelerator units in each Power10 core.

# Meet the solutions

Explore the IBM Power10 family of reliable, secure and sustainable servers.

## IBM Power S1014

A 1-socket, 4U server with superior price-performance for business-critical workloads.

With up to 8 Power10 cores and up to 1 TB memory in a rack or tower form factor, the scale-out IBM Power S1014 is ideal for running business-critical apps, optimising software licensing costs through workload consolidation, and accelerating insight by running AI models on the same system as your data.

- **More memory bandwidth**  
Provide 20% more memory bandwidth compared to IBM Power S914<sup>10</sup>
- **More performance per core**  
On average 57% or more performance per core compared to IBM Power S914<sup>11</sup>
- **Improve security**  
Employ memory encryption for end-to-end security across hybrid cloud without impacting app performance
- **Run AI inferencing**  
Improve performance of models and reduce latency by running AI workloads at the point of data
- **Matrix math acceleration**  
Benefit from four matrix math accelerators per core for faster AI inferencing



Product details →

<sup>10</sup>Based on IBM internal testing of 409.6 GB/s per socket for IBM Power S1014 (3200 MHz x 8B/chn x 8chns) compared to 170.6 GB/s for IBM Power S914 (2667 MHz x 8B/chn x 8 chns). All results can be found at <https://www.ibm.com/downloads/cas/K90RQOW8>.

<sup>11</sup>Based on IBM internal testing. SMT8 rPerf results for IBM Power S914/4-core rPerf per core of 20.2 (81/4 cores) compared to IBM Power S1014 rPerf per core of 31.8 (127/4 cores). All results can be found at <https://www.ibm.com/downloads/cas/K90RQOW8>.

# IBM Power S1022

A 2-socket, 2U server for designed for business-critical workloads on IBM AIX, IBM i or Linux.

Available in single-processor or dual-processor configurations, the scale-out IBM Power S1022 server supports up to 40 Power10 cores and up to 4 TB memory to meet a wide range of use cases including distributed computing, DevOps, database, and healthcare apps.

- **Expand app function**  
Get up to 37% more performance per core compared to IBM Power S922<sup>12</sup>
- **More cores per system**  
Co-locate workloads on fewer servers and increase system utilization with 1.5X more cores per system
- **2.4X more memory bandwidth**  
Harness 2.4X more memory bandwidth compared to IBM Power S922
- **Active Memory Mirroring**  
Increase uptime and improve availability and reliability with Active Memory Mirroring
- **Flexible consumption**  
Get cloud economics on-prem with usage-based metering across servers

Product details →



<sup>12</sup>Based on IBM internal testing. SMT8 rPerf results of IBM Power S922/22-core rPerf per core of 20.7 (456/22 cores) compared to IBM Power S1022/24-core rPerf per core of 28.6 (686/24 cores). All results can be found at <https://www.ibm.com/downloads/cas/K90RQOW8>.



# IBM Power S1024

**A 2-socket, 4U Power10-based server designed for business-critical workloads on IBM AIX, IBM i or Linux.**

With up to 48 Power10 cores and up to 8 TB memory, the scale-out IBM Power S1024 server delivers superior price-performance for business-critical workloads and can consolidate workloads on fewer servers than Power9-based systems.

- **Faster applications**  
Get up to 33% more performance per core and 3X more performance compared to IBM Power S924<sup>13</sup>
- **More cores per system**  
Co-locate workloads on fewer servers and increase system utilization with 2.5X more cores per system
- **More memory bandwidth**  
Harness 2.4X more memory bandwidth compared to IBM Power S924
- **Industry-leading RAS**  
Increase uptime and availability of business-critical apps by implementing Active Memory Mirroring
- **AI inferencing**  
Run AI inferencing on the same system as data for improved performance of models and lower latency



Product details →

<sup>13</sup>Based on IBM internal testing. SMT8 rPerf results of IBM Power S924/24-core rPerf per core of 24.3 (583/24 cores) compared to IBM Internal results of IBM Power S1024/24 core rPerf per core of 33.1 (795/24 cores). All results can be found at <https://www.ibm.com/downloads/cas/K90RQOW8>.

# IBM Power E1050

**A 4-socket rack server optimized for data-intensive apps and hybrid cloud deployments.**

The IBM Power E1050 mid-range server provides enterprise-class capabilities in a reliable, secure, space-efficient 4U rack. Production-ready AI at the point of data enables transparent memory encryption, efficient scaling and faster insights.

- **Computational strength and data bandwidth**  
Demanding AI inferencing and machine learning are now more manageable
- **Resilient memory**  
Power10 DIMMs deliver 2X better memory reliability and availability than industry-standard DIMMs<sup>14</sup>
- **Transparent memory encryption**  
This new layer of defence keeps all data in memory encrypted between memory and processor
- **Streamline insights**  
Reduce complexity and cost by running AI inferencing directly in core where data lives
- **Maximize availability**  
Leverage redundancy and disaster recovery in IBM Cloud using recovery and self-healing



[Product details →](#)

# IBM Power E1080

Built on the IBM Power10 processor, the IBM Power E1080 server is designed for continuous availability, persistent security, and driving faster AI.

When cyber resilience and efficient scaling are essential, businesses need an enterprise-grade hybrid cloud infrastructure engineered to handle it all. E1080 makes the most secure and reliable server platform in its class even better with transparent memory encryption, plus faster insights with production-ready AI at the point of data.

- **Protect data from core to cloud**  
with transparent in-memory encryption and quantum-safe encryption
- **Drive efficiency with sustainable and scalable compute**  
with 33% lower energy consumption for the same workload on Power E1080 vs. E980<sup>15</sup>
- **Streamline insights and automation**  
with the built-in AI inference engine on Power10
- **Deliver continuous availability**  
with 99.999% single-system availability<sup>16</sup>
- **Industry-leading resilience**  
Power10 can detect, isolate, and recover from errors automatically

[Product details →](#)[Data sheet →](#)[Redbooks →](#)

## The IBM Power10 family of servers are ideal for businesses that want to:

### Improve security and reliability

Simplify security from core to cloud, with transparent memory encryption and 4x more cryptographic engines. Power has been rated #1 for reliability 12 years running by ITIC.

### Ensure compute is scalable and sustainable

Save 1/3 the energy in mission-critical environments, with 2.5x better per-core performance vs. x86 SPECint rate<sup>17</sup> and 50% more capacity with the same energy consumption<sup>18</sup>. Extend server life with the ability to scale up to 16 sockets.

### Innovate with hybrid cloud

Increase flexibility with an optional pay-for-use consumption model for private servers. Extend workloads off premises and have a seamless hybrid experience with Power Virtual Server.

### Use AI at the point of data

Run AI “in place” with four new Matrix Math Accelerators (MMAs) in each core. Remove the cost of external accelerators. Major AI frameworks like TensorFlow are pre-optimised and code runs without changes.

<sup>15</sup>Power9 (12c) IS 5081 rPerf @ 16,520 Watts (0.31 rPerf/Watt), Power10 (15c) is 7998 rPerf @ 17,320 Watts (0.46 rPerf/Watt); 0.46 / 0.31 = 1.48 more rPerf/Watt

<sup>16</sup>ITIC (June 2021). Global Server Hardware, Server OS Security Report. <https://www.ibm.com/account/reg/us-en/signup?formid=urx-39584>.

# Tools and resources

**Find answers** to your questions about IBM Power servers.

## Useful guides

### Explore E1080 in AR

Take an augmented reality tour of the new Power server.



### IBM Power interactive tour

Answer questions on Why IBM Power, workloads, and product solutions.



### ITIC Reliability Report

This global server hardware report confirms that IBM Power servers lead in reliability and availability. →

### IDC analyst white paper

Read this report on why IBM Power is the sweet spot of enterprise computing. →

## Quick links



### Follow IBM on social media

IBM Servers on Twitter



### IBM Servers & Storage on LinkedIn

Connect with our vibrant community of users, experts and innovators



### IBM Servers & Storage Blog

Read the latest news and insights from the IBM systems team

<sup>17</sup>Based on published rPerf results for Power E980/12 core compared to IBM Internal rPerf measurements (using the same methodology) for Power E1080/15 core <https://www.ibm.com/downloads/cas/K90RQOW8>

<sup>18</sup>Comparison based on single 8-socket systems (IBM Power E1080 3.55 - 4 GHz, 120 core, AIX and Superdome Flex 280 2.90 GHz, Intel Xeon Platinum 8380H) using published results at [www.spec.org/cpu2017/results/](http://www.spec.org/cpu2017/results/) as of 02 September 2021. SPEC® and the benchmark names SPECrate®2017\_int\_base and SPECrate®2017\_int\_peak are registered trademarks of the Standard Performance Evaluation Corporation. For more information about SPEC CPU 2017, see [www.http://spec.org/cpu2017/](http://www.http://spec.org/cpu2017/).



# Flexible financing

**IBM offers a range of payment solutions to help you gain flexibility and start your Power project sooner. With IBM Global Financing you can:**

- Optimise cash flow with minimised up-front cash outlays
- Pay for the use rather than the ownership of IBM Power servers
- Speed up project approvals by spreading cost over time
- Customise payment plans to help align payments with anticipated benefits
- Expand or upgrade to new technology mid lease

[IBM Payment solutions →](#)

[IBM Global Financing →](#)

## Talk to us

We're here to discuss your goals and how IBM Power servers can help you.

[Contact us now →](#)



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