IBM Power S1124

Autonomous IT built for the AI era

Highlights

Continuous operations

Quantum-safe security

Cyber resilience

Scalable and flexible growth

The new IBM® Power® S1124 introduces a comprehensive suite of new capabilities derived from our biggest strength: an end-to-end, full-stack design and synergy. From the Power processor and systems to the firmware and operating systems, and ultimately to the cloud, we have developed unique and innovative capabilities by integrating all layers of infrastructure. This holistic approach is centered on autonomous IT, translating into real business outcomes across three core pillars:

- Business Continuity: Providing a resilient and reliable foundation for your mission-critical workloads, ensuring lower risk exposure to threats and regulations, irrespective of deployment model.
- Productivity and Efficiency: Enabling your infrastructure to achieve new levels of uptime and operational efficiency, significantly reducing complexity and cost.
- Accelerated Growth and Scalability for the AI Era: Empowering rapid growth and scalability by seamlessly deploying a broader range of AI use cases and new applications for mission-critical processes, consistently and securely.

Figure 1. IBM Power S1124

Business Continuity

IBM Power S1124 delivers a paradigm shift in maximizing continuous operations.

Zero Planned Downtime for System Maintenance
Traditionally, businesses have had to schedule maintenance windows, leading to service interruptions. Avoiding planned downtime to apply updates and patches could lead to significant security and operational risks. IBM Power11 processor-based servers can enable zero hours of planned downtime for system maintenance[1]. Through advanced technologies, necessary maintenance and updates can be performed without ever taking business-critical applications and workloads offline. This eliminates the impact of planned outages on business operations and allows for continuous service delivery.

IBM Power Cyber Vault
Advanced threat detection capabilities in Power S1124, offered with IBM Power Cyber Vault, can detect a ransomware attack in less than one minute[2]. If an incident does occur, recovery mechanisms allow an automated restoration and recovery of systems and data, minimizing the impact and potential financial losses associated with cyberattacks. This rapid detection and recovery significantly strengthens the cyber resiliency posture.

Quantum-Safe Protection
In addition to the Transparent Memory Encryption (TME) capability introduced in Power10, which offers a hardware-based security feature that automatically encrypts data stored in memory, the Power S1124 incorporates advanced codes and ciphers to keep you protected during system reboot and live partition mobility processes. The system also supports the new hardware security module 4770 Crypto Card to elevate your security compliance posture with FIPS 4 certification.

Spare Cores
Integrated advanced spare core capabilities directly at the silicon level, significantly enhancing system resilience and availability. This feature designates a pool of fully functional, idle processor cores ready to be dynamically activated in the event of a detected hard error or failure within an active core. This proactive hardware-level fault tolerance mechanism minimizes the impact of component failures, preventing unscheduled downtime and ensuring continuous processing for mission-critical workloads by maintaining compute capacity and preserving system integrity.

Concurrent Maintenance
Concurrent maintenance on IBM Power11 processor-based servers gives users the ability to perform hardware service and upgrades- such as replacing power supplies, fans, or I/O components- without shutting down the system or interrupting running business-critical workloads. This capability is crucial for maintaining high availability and minimizing planned downtime in enterprise environments. By enabling technicians to service critical system elements while mission-critical applications continue running, concurrent maintenance supports continuous operations, improves system uptime, and aligns with the always-on demands of modern IT infrastructure.

26%

Better server efficiency with the new Energy Efficiency Mode

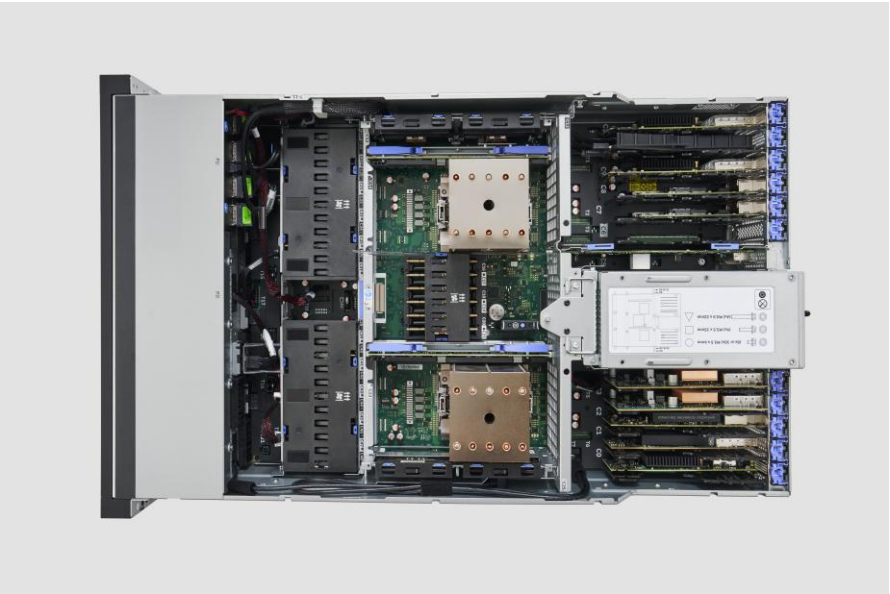

Figure 1. IBM Power S1124

Enhanced Productivity and Efficiency

Significantly boost outputs and realize substantial time savings through highly efficient IT operations.

Autonomous System Maintenance
To achieve zero downtime during a maintenance process, the Power S1124 leverages the platform's advanced automations to significantly lower the risks associated with such a complex, manual update process, reducing the potential for human error and ensuring consistent execution. The system intelligently orchestrates the maintenance events, giving back substantial time to IT staff previously consumed by extensive planning, execution, and verification of downtime procedures. This inherent automation reduces the dependency on specialized or advanced skills to perform updates, simplifying operations and making high availability more accessible and reliable for all critical applications.

Faster Support Engagements
This capability automates diagnostic data collection which improves problem identification, reducing time spent by IT system administrators and freeing valuable resources for more strategic tasks.

Intelligent Energy Management
Power S1124 introduces a new Energy Efficiency mode with an automated scheduling option, designed to reduce operational costs and environmental impact. This intelligent, programmable capability manages power consumption across the system, optimizing resource utilization without compromising performance or critical business Service Level Agreements (SLAs). Enterprises can achieve 26% better server efficiency with the new Energy Efficiency mode compared to Maximum Performance mode on Power S1124[3]. This innovation translates directly into substantial cost savings and a reduced datacenter footprint, reinforcing your commitment to sustainability while delivering top-tier performance for your demanding workloads.

Automated Cryptographic Inventory
A comprehensive, automated discovery and inventory of all cryptographic assets across the system, including certificates, keys, and their associated configurations. Monitor the cryptographic posture, identifying potential vulnerabilities, misconfigurations, or non-compliant usage against defined security policies and regulatory frameworks with IBM PowerSC.

Scalable and Flexible Growth

Enterprise AI on IBM Power
Power11, with on-chip acceleration, high parallelism, and large memory, provides a sustainable and secure platform to embed AI into transactions and workflows. Power11 processor-based servers allow clients to interface and embed AI close to business-critical applications and data. This reduces security risks of data leakage and improves latency and performance of models by bringing AI to where data is living and being generated. Power11 processor-based serves offer consistent security, lower latency, and less complexity without requiring the additional cost of GPUs.

IBM Power Private Cloud with Shared Utility Capacity
IBM Power Private Cloud with Shared Utility Capacity on Power S1124 provides enhanced multisystem resource sharing and by-the-minute tracking and consumption of computing resources across a collection of systems within Power Enterprise Pools 2.0. It delivers a complete range of flexibility to tailor initial system configurations with the right mix of purchased and pay-for-use consumption of processors and software. A Power Private Cloud solution consolidated onto Power S1124 has the potential to greatly simplify system management so IT teams can focus on optimizing their business results instead of moving resources around within their data center. Clients no longer need to worry about overprovisioning capacity on each system to support growth, as all available processors on all systems in a pool are activated and available for use.

Power11 on IBM Power Virtual Server
IBM Power Virtual Server is a cloud-based infrastructure solution that brings the performance and reliability of Power to a flexible and scalable virtual environment. It allows businesses to run AIX, IBM i, and Linux workloads in the cloud without having to refactor applications, making it ideal for hybrid cloud strategies and architectures. With seamless integration into the broader IBM Cloud® ecosystem, Power Virtual Server provides secure, high-performance compute capacity alongside automation, backup, and disaster recovery capabilities. It is designed for enterprises looking to modernize their infrastructure, improve operational efficiency, and extend existing on-prem Power environments into the cloud to take advantage of pay-as-you-use billing to manage costs.

IBM Power S1124 Technical Specifications

Product Line	IBM Power S1124
Machine Type	9824-42A
System Packaging	19” Rack Drawer (4U)
Microprocessor Type	64-Bit Power11
Number of Processor Sockets Per Server	1 Upgradable or 2
Processor Options GHz (Cores/Socket) | Max # of Cores	3.4 to 4.2 GHz (16) | 32 3.05 to 4.15 (24) | 48 2.8 to 3.95 GHz (30) | 60
EnergyScale	Y
Level 2 (L2) Cache Per Core	2 MB
Level 3 (L3) Cache Per Core	8 MB
System Memory (Minimum-Maximum) 4000/4800 MHz DDR5	64 GB – 8 TB
Reliability, Availability, Serviceability	
Chipkill Memory	Y
Service Processor (eBMC)	Y
Hot-Swappable NVMe SSD Disks	Y
Dynamic Processor Deallocation	Y
Processor Instruction Retry	Y
Hot-Plug Concurrent Maintenance PCIe Slots	Y
Redundant Hot-Plug Power	Y
Redundant Hot-Plug Cooling	Y
Dual VIOS	Optional
Active Memory Mirroring	Y
Capacity and Expandability	
Capacity on Demand (CoD)	CUoD
Power Private Cloud (EP2.0)	Y
PowerVM Enterprise Edition	Y
Max Logical Partitions/Micropartitions	1000
System Unit PCIe Slots	4 PCIe x16 Gen4 or Gen5 x8 4 PCIe x8 Gen5 2 PCIe x8 Gen4
Max PCIe Gen4 I/O Drawer	2
Max PCIe Gen4 Slots: PCIe I/O Drawers	24 in I/O Drawer
Max NED24 NVMe Drawer	1
Max NED24 NVMe Slots: NVMe Drawer	24 U.2 NVMe Bays
Internal Storage Bays	16 NVMe U.2
Maximum TB Storage in System Unit	244.8 TB (16 x 15.3TB NVMe U.2)
AIX SMT8 rPerf # of Cores: rPerf	32C: 1117/559 48C: 1529/NA 60C: 1737/NA
IBM i CPW # of Cores: Perf	32C: 823,000/433,200 48C: 1,118,500/NA 60C: 1,345,900/NA

Conclusion

IBM Power S1124 is a 4U server designed for enterprises and regional data centers that need strong compute, memory, and hybrid cloud flexibility. Supporting up to 60 Power11 cores and 8 TB of memory, the Power S1124 runs AIX, IBM i, and Linux to power a variety of mission-critical workloads. It enables solid business continuity, seamless scalability, operational efficiency, and modern workload management without adding IT complexity.

Why IBM?

IBM brings decades of experience helping enterprises modernize with trust, performance, and long-term support. With the Power11 platform, IBM continues that tradition, combining deep infrastructure expertise, innovation in hybrid cloud and AI, and a global ecosystem of Business Partners. Choosing IBM Power means choosing infrastructure built to evolve with your business- secure by design, built for resilience, and ready for whatever is next.

For more information

To learn more about IBM Power S1124, contact your IBM representative or IBM Business Partner, or visit www.ibm.com/products/power-S1124

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1. Based upon IBM internal testing of system upgrade scenarios; many (i.e. VIOS, hot plug adapters, I/O adapter FW, and concurrent system firmware updates) can be done in-place while some (i.e. non-concurrent system FW and HW maintenance) may require Live Partition Mobility (LPM) support.
2. This guarantee covers only the displaying of an alert in less than one minute. Remediation is in the form of drive replacement up to the cost of the Covered Product. Terms and conditions apply; full details can be found here.
3. Based upon IBM measurements on servers comparing Maximum Performance Mode to Energy Efficient Mode while running compute-, disk-, and memory-based workloads running on Power S1124 with 2x16c/32x32GB DDIMM.