Escala E3-1100 & E4-1100

Reliable, consistent and secured scale-out servers

The Escala E3-1100 and E4-1100 scale-out servers based on the Power11 processor have been designed to improve scale performance and security while delivering class-leading reliability and lowering IT costs through reduced footprint and lowered cooling and electrical costs, and the required agility for the unpredictability of today's business. Organisations can benefit from increased agility and deploy their business-critical workloads across private or hybrid cloud.

Up to 15-25%	26%	5-8 hours saved
core performance increase compared to Power10	better server efficiency with the new Energy Efficiency mode compared to Maximum Performance mode on E4-1100	Of IT staff time per ticket

Adapt to increasing client workloads and lower TCO

The Escala Power11 scale-out servers deliver new innovations and optimisations increasing both performance and energy efficiency compared to Power10 servers for the same workloads.

Improved performance

- Higher core frequencies, additional cores per server, and improved memory bandwidth with reduced memory latency offering up to 15-25% core performance increase and up to 8% increase at constant core count.
- Enhanced software scaling, affinity, and efficiency.

New Resource Group capability

Maximise system utilisation, improve workload isolation, and deliver up to 25% improved performance.

Reduce data centre footprint

Enterprises can achieve 26% better server efficiency on E4-1100 and 13% on E3-1100 with the new Energy Efficiency mode compared to Maximum Performance.

This intelligent, programmable capability manages power consumption across the system, optimising resource utilisation without compromising performance or critical business Service Level Agreements (SLAs).

In-core AI capabilities permit running inferencing workloads inside the server without requiring additional accelerator hardware.

Built-in security

With applications and data now residing everywhere, security is an increasingly critical concern for CIOs and IT Managers and has always been a design priority for Power-based architecture, which has allowed them to be ranked highly in terms of end-to-end security.

The new Escala Power11 scale-out servers benefits advanced security features at every level of the system, strengthening data protection no matter where they are.

Key security features

- Transparent memory encryption with no management set up and no performance impact.
- Support of future cryptographic techniques, such as quantum-safe cryptography and fully homomorphic encryption.
- Rapid ransomware detection and automated recovery, helping minimise disruption and financial impact.
- Automated cryptographic inventory intended to help meet evolving compliance needs and robust data security.
- Quantum Safe protection for boot and LPM.

Additionally, organisations benefit from **centralised security management** through **PowerSC**, streamlining governance across workloads.

Industry-leading reliability and availability

For over 13 years, Power-based platforms have led industry in infrastructure reliability - and the **Escala Power11 scale-out servers** continues that legacy with innovations that maximise uptime and operational continuity.

Unmatched platform reliability

E3-1100 and E4-1100 features **advanced recovery and diagnostics,** along with **OMI-attached differential DIMMs** that deliver **twice the memory reliability and availability** compared to industry-standard DIMMs.

Resilience against failures

With **Active Memory Mirroring,** critical memory used by the PowerVM hypervisor is duplicated, allowing the system to continue operating even if a memory failure occurs. Plus, **two spare cores per socket** ensure computing continuity in the event of hardware issues.

Zero planned downtime

The Power11 generation introduces capabilities that allow **planned maintenance without taking critical workloads offline**, ensuring continuous availability.

Faster problem resolution

Automated diagnostic data collection can save your IT team **5 to 8 hours per support ticket,** dramatically accelerating problem identification and resolution and reducing mean time to repair and freeing up resources for strategic initiatives.

Built for virtualisation and Cloud deployment

The Escala Power11 scale-out servers offer a VMWare alternative as they **include the PowerVM Enterprise Edition to deliver virtualised environments** and to support a frictionless hybrid cloud experience. Workloads can run the AIX, Linux and IBMi operating systems, and leverage container technology with Kubernetes or Red Hat OpenShift Container Platform.

Technical specifications

Model Name	Escala E3-1100		Escala E4-1100
Processor module Type	• eSCM	• DCM	• DCM
Form factor	• 2U	• 2U	• 2U
# of sockets	• 1 or 2	• 1 or 2	• 1 or 2
Processor offerings GHz (Cores/Socket) | Max # of Cores	• 3.6 to 4.0 GHz (**4**) | 8 • 3.05 to 4.0 (**10**) | 20	• 3.0 to 4.2 GHz (**16**) | 32 • 2.65 to 4.15 (**24**) | 48 • 2.4 to 3.95 GHz (**30**) | 60	• 3.4 to 4.2 GHz (**16**) | 32 • 3.05 to 4.15 (**24**) | 48 • 2.8 to 3.95 GHz (**30**) | 60
Cache Per Core L2, L3	• 2 MB, 8 MB		
Processor Interconnect	• 4x2B @32 Gbps	• 4x2B @32 Gbps	• 4x2B @32 Gbps
# of memory channels	• 16 OMI channels	• 32 OMI channels	• 32 OMI channels
Max memory bandwidth 2U DDIMM DDR5	• 614 GB/s w/ 2x 32GB • 1228 GB/s w/ 2x 64GB • 1228 GB/s w/ 2x 128GB		• 614 GB/s w/ 2x 32GB • 1228 GB/s w/ 2x 64GB • 1228 GB/s w/ 2x 128GB • 1228 GB/s w/ 2x 256GB
# of DIMMs	• 32 DDIMMs 4000MHz	• 32 DDIMMs 4000 or 4800 0 MHz	• 32 DDIMMs 4000 or 4800 0 MHz
Min - Max memory capacity	• 64GB - 4 TB		• 64GB - 8 TB
Acceleration ports	• NA	• 6 ports @25 Gbps	• 6 ports @25 Gbps
PCIe slots	• 4 PCIe Gen4 x16 • 6 PCIe Gen4 x8	• 4 PCIe Gen5 x8 • 4 PCIe Gen4 x16 or Gen5 x8 • 2 PCIe Gen4 x8	• 4 PCIe Gen4 x16 or Gen5 x8 • 4 PCIe Gen5 x8 • 2 PCIe Gen4 x8

Model Name	Escala E3-1100		Escala E4-1100
Slots for internal storage	• General purpose	• General purpose	• General purpose
# internal drives	• 8 NVMe U.2		• 16 NVMe U.2
Internal storage capacity	• up to 122.4 TB		• up to 244.8 TB
I/O expansion drawer	• 1 PCIe4 NVMe or PCIe Gen4 4U		• Up to 2 • max 1 PCIe4 NVMe
AIX rPerf (max)	• 292.9 w/ 8-core • 626.7 w/ 20-core	• 1040.3 w/ 32-core • 1357.8 w/ 48-core • 1531.9 w/ 60-core (0.835 rPerf/Watt)	• 1117.1 w/ 32-core • 1529.0 w/ 48-core • 1736.8 w/ 60-core (0.598 rPerf/Watt)

Bull and IBM: a perfect fit

Since 1992, Bull and IBM have built a unique relationship, with IBM leading to a highly productive technological cooperation. This has fundamentally strengthened the AIX ecosystem, by regularly generating innovations, in areas such as scalability, RAS, virtualisation and cloud enablement.

Scale-out servers' common features:

- 1 USB Front Port
- EnergyScale.
- Capacity on Demand: mobile CoD, Power Enterprise Pool as an option
- RAS: Chipkill Memory, Hot-Swappable NVMe SSD Disks, Dynamic Processor Deallocation, Processor Instruction Retry, Hot-Plug Concurrent Maintenance PCIe Slots, Redundant Hot-Plug Power, Redundant Hot-Plug Cooling
- Dual VIOS Optional, Active Memory Mirroring.
- Service Processor: Enterprise BMC (eBMC)
- PowerVM™: Enterprise Edition included
- AIX support: 7.2, 7.3 or later
- Linux support: RHEL 8.6, 9.4, 9.6, 10, SLES 15 SP6 or later, Red Hat OpenShift Container Platform 4.19 or later
- HMC support: HMC CR2 or vHMC with Firmware v11.1.1110
- IBMi support: 7.4, 7.5, 7.6 or later - Contact Bull representative for more details
- 3 years standard warranty.

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