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## Highlights

- **Big data:** The exponential growth in data needs a server designed for it. The IBM® Power System S822LC for Big Data is purpose-built for high-data-intensive Linux workloads
  - **Price-performance:** Leveraging the IBM POWER8® architecture and a purpose-built big data server design, experience a total-cost-of-ownership (TCO) leadership
  - **Open designs:** OpenPOWER ecosystem and technologies from some of the world's most innovative companies
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# IBM Power System S822LC for Big Data – two-socket Linux server

*A storage-rich, high-data-throughput server for data-intensive workloads*

In today's demanding digital economy, business is competition, and you have to do everything you can to separate your business from the rest. With the constant influx of data and data sources, companies need to be able to process data faster than ever before to stay ahead. *OpenPOWER LC servers are different by design*—engineered at virtually every level and designed to be more powerful and open. Put your most data-intensive analytics workloads on the servers that were born to run them.

IBM Power System S822LC for Big Data is a scale-out Linux server that delivers a storage rich, high-data-throughput design built on open standards to meet the big data workloads of today and grow with your needs for tomorrow.

The IBM Power System S822LC for Big Data provides:

- Consolidated server footprint with 42 percent more virtual machines (VMs) in the same footprint as competitive x86 servers<sup>1</sup>
- Superior data throughput and performance for high-value Linux workloads, such as big data, analytic and industry applications<sup>1,2,3,4</sup>
- Up to 12 large form factor (LFF) drives installed within the chassis to meet storage-rich application requirements



**IBM Systems**  
**Data Sheet**

- Superior application price-performance due to higher per-core performance over x86-based systems<sup>2,4</sup>
- Leadership data throughput enabled by POWER8 multi-threading with up to 4x more threads per core than x86 designs<sup>1,3,5</sup>
- Acceleration of big data workloads with up to 2 GPUs and superior input/output (I/O) bandwidth with CAPI
- Industry-leading, 1.8X better price-performance<sup>1,2,3,4</sup>




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**IBM Power System S822LC for Big Data at a glance**

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**Processors and memory**

Microprocessors	Two 8-core 3.32 GHz POWER8 processor cards or two 10-core 2.92 GHz POWER8 processor cards
Level 2 (L2) cache	512 KB L2 cache per core
Level 3 (L3) cache	8 MB L3 cache per core
Level 4 (L4) cache	Up to 32 MB per socket
RAM (Memory)	4 GB, 8 GB, 16 GB, 32 GB DDR4 DIMMs; 64 GB to 512 GB per system
Processor-to-memory bandwidth	57.5 GB/sec per socket, 115 GB/sec per system (Max sustained memory bandwidth to L4 cache from SCM) 85 GB/sec per socket, 170 GB/sec per system (Max peak memory bandwidth to DIMMs from L4 cache)

**IBM Systems**  
**Data Sheet**

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**IBM Power System S822LC for Big Data at a glance**

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**I/O and storage**

Adapter slots	Two PCIe x16 Gen3 FHFL double wide, CAPI enabled Two PCIe x8 Gen3 FHFL, CAPI enabled One PCIe x8 Gen3 HHHL Up to two NVIDIA GPUs
I/O Bandwidth	64 GBps (Simplex)
Standard I/O	4 Port 10G BaseT Ethernet 2x USB 3.0 1x COM and 1x VGA System management IPMI dedicated 1 GE
Internal storage capacity	Twelve HDD/SSD/NVMe (Max 4x NVMe)
Internal storage options	1,2,4,6,8 TB SATA, 2,4,6,8 TB SAS, 160 GB – 3.2 TB SATA NVMe

**Other**

Operating systems*	Linux on POWER • RHEL 7.2 • Ubuntu 16.04
Racks	Industry standard
Power input	200-240 VAC
System dimensions	Width: 441.5 mm (17.4 in.) Depth: 822 mm (32.4 in.) Height: 86 mm (3.4 in.)
Warranty	Three-year limited warranty; 100 percent client replaceable units (CRU) (varies by country), next business day 9 a.m. - 5 p.m. (excluding holidays), warranty service upgrades and maintenance are available

### **Why IBM?**

IBM has continually invested in hardware and solution innovation, pushing the performance envelope, resulting in differentiated technology and significant value to our clients. IBM opened its IBM POWER® architecture to the OpenPOWER Foundation, which includes members such as Google, NVIDIA and Rackspace, to collaborate and innovate on hardware technology.

IBM's OpenPOWER LC servers bring performance and TCO leadership to the scale-out Linux market. Additionally, businesses that rely on IBM Power Systems™ servers don't just value leading technology and applications. They value the exceptional client experience that IBM provides throughout the business solution lifecycle that helps them drive rapid and lasting business value.

### **For more information**

To learn more about the IBM Power System S822LC for Big Data, please contact your IBM representative or IBM Business Partner, or visit the following website: [ibm.com/systems/power/hardware/s822lc-big-data/](http://ibm.com/systems/power/hardware/s822lc-big-data/)

Additionally, IBM Global Financing provides numerous payment options to help you acquire the technology you need to grow your business. We provide full lifecycle management of IT products and services, from acquisition to disposition. For more information, visit: [ibm.com/financing](http://ibm.com/financing)

## IBM Systems Data Sheet

\* See facts and features document for detailed OS-level support.  
[ibm.com/systems/power/hardware/reports/factsfeatures.html](http://ibm.com/systems/power/hardware/reports/factsfeatures.html)

<sup>1</sup> 42 percent more VM's per server (1.84X more VM's per \$); 35 percent more throughput per server (1.73X more throughput/\$) based on IBM internal testing of single system running multiple virtual machines with Sysbench read only work load and are current as of August 22, 2016. Performance figures are based on running 24 M record scale factor per VM. Individual results will vary depending on individual workloads, configurations and conditions.

IBM Power System S822LC for Big Data; 20 cores / 160 threads, POWER8; 2.9 GHz , 384 GB memory MariaDB 10.1.16, 20 8vcpu VMs of Ubuntu 16.04 with KVM compared to competitive stack: HP Proliant DL380 28 cores / 56 threads; Intel E5-2690 v4, 2.6 GHz; 256 GB memory, MariaDB 10.1.16, 14 4 vcpu VMs of Ubuntu 16.04. with KVM.

For more information about MariaDB go to: <http://mariadb.org/>

Pricing is based on: S822LC for Big Data <http://www-03.ibm.com/systems/power/hardware/linux-lc.html> and HP DL380 <https://h22174.www2.hp.com/SimplifiedConfig/Index>

<sup>2</sup> 1.66X per core performance and 1.62X more performance/\$ based on IBM internal testing of single system and OS image running with pgbench work load at scale factor of 1000 and are current as of August 21, 2016. Individual results will vary depending on individual workloads, configurations and conditions. OS and EDB subscription and hardware standard support price is 3 yr duration.

IBM Power System S822LC for Big Data; 16 cores / 128 threads, POWER8; 3.3 GHz, 256 GB memory, EDB Postgres Advanced Server 9.5, RHEL 7.2 compared to competitive stack: HP Proliant DL380, 28 cores / 56 threads; Intel E5-2690 v4; 2.6 GHz; 256 GB memory, EDB Postgres Advanced Server 9.5, RHEL 7.2 and both configurations included 2 x 1 TB SATA 7.2K rpm HDD, 1 Gb 2-port, 1 x 16gbps FCA.

Pricing is based on: S822LC for Big Data <http://www-03.ibm.com/systems/power/hardware/linux-lc.html>  
EDB 9.5 <http://www.enterprisedb.com/products-services-training/subscriptions-power> and HP DL380 <https://h22174.www2.hp.com/SimplifiedConfig/Index>

<sup>3</sup> 40% more throughput per server and 1.68X better performance/\$ based on IBM internal testing of single system and OS image running Yahoo Cloud Services Benchmark (YCSB) 0.6.0, 1M record workload at 50/50 read/write factor. Results valid as of 8/24/16 Conducted under laboratory condition, individual result can vary based on workload size, use of storage subsystems & other conditions.

IBM Power System S822LC for Big Data; 20 cores (2 x 20c chips) / 160 threads, POWER8; 2.9 GHz, 128 GB memory, MongoDB 3.3.8 RHEL 7.2. Competitive stack: HP Proliant DL380, 28 cores (2 x 14c chips) / 56 threads; Intel E5-2690 v4; 2.6 GHz; 128 GB memory, MongoDB 3.3, RHEL 7.2 . Both server priced with 2 x 1 TB SATA 7.2K rpm HDD, 1 Gb 2-port, 1 x 16 gbps FCA. Configurations represent the specific processor running the MongoDB server on 1 socket & the YCSB application workload on the 2nd socket. IBM Flash 900 storage was used on both server for testing.

Pricing is based on: S822LC for Big Data <http://www-03.ibm.com/systems/power/hardware/linux-lc.html>, and HP DL380 <https://h22174.www2.hp.com/SimplifiedConfig/Index>  
MongoDB <https://www.mongodb.com/compare/mongodb-oracle>

<sup>4</sup> 2.1X better per core performance and 2.12X better performance/\$ based on IBM internal testing of single system running multiple virtual machines with pgbench select only work load and are current as of August 25, 2016. Performance figures are based on running a 300 scale factor. Individual results will vary depending on individual workloads, configurations and conditions.

IBM Power System S822LC for Big Data, 20 cores / 160 threads, POWER8; 2.9 GHz, 256 GB memory, 2 x 1 TB SATA 7.2K rpm LFF HDD, 10 Gb two-port, 1 x 16 gbps FCA, EDB Postgres Advanced Server 9.5 , RHEL 7.2 with KVM (22 VMs).

Competitive stack: HP Proliant DL380 ; 44 cores / 88 threads; Intel E5-2699 v4; 2.2 GHz; 256 GB memory, 2 x 300 GB SATA 7.2K rpm LFF HDD, 1 Gb two-port, 1 x 16gbps FCA , EDB Postgres Advanced Server 9.5, RHEL 7.2, KVM (22 VMs).

Pricing is based on: S822LC for Big Data <http://www-03.ibm.com/systems/power/hardware/linux-lc.html>,  
EDB 9.5 <http://www.enterprisedb.com/products-services-training/subscriptions-power> and HP DL380 <https://h22174.www2.hp.com/SimplifiedConfig/Index>

<sup>5</sup> <http://www.intel.com/content/www/us/en/processors/xeon/xeon-processor-e5-family.html>  
<http://www.intel.com/content/www/us/en/processors/xeon/xeon-processor-e7-family.html>  
[http://www.hotchips.org/wp-content/uploads/hc\\_archives/hc26/Hc26-12-day2-epub/Hc26.12-8-Big-Iron-Servers-epub/Hc26.12.817-POWER8-Mericas-IBM-Revised-no-spec.pdf](http://www.hotchips.org/wp-content/uploads/hc_archives/hc26/Hc26-12-day2-epub/Hc26.12-8-Big-Iron-Servers-epub/Hc26.12.817-POWER8-Mericas-IBM-Revised-no-spec.pdf)



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Somers, NY 10589

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