IBM Power Systems

Quick Reference Guide
for POWER8™ Processor-based Servers

6 October 2014

to put data to work across th

Power Scale-out Systems	Power S812L	Power S822L	Power S814	Power S822	Power S824	Power S824L
System package	2U, 19″ rack	2U, 19″ rack	4U, 19″ rack or tower	2U, 19″ rack	4U, 19″ rack	4U, 19″ rack
# of processor sockets	1	2	1	1 or 2	1 or 2	2
POWER8 Processor Options GHz - # of cores	3.42 GHz – 10 3.02 GHz – 12	3.42 GHz – 20 3.02 GHz –24	3.02GHz – 4 3.02 GHz - 6 3.72 GHz - 8	3.89 GHz - 6,12 3.42 GHz - 10,20	3.89 GHz - 6, 12 4.15 GHz - 8, 16 3.52 GHz – 24	3.42 GHz – 20 3.02 GHz –24
Max memory (1600 MHz DIMMs)	512 GB	1024 GB	4-core: 64 GB 6/8-core: 512 GB	1-socket 512GB 2-sockets 1024 GB	1-socket 512GB 2-sockets 1024 GB	1024 GB
PCIe Gen3 slots[1,2]	6	9	7	6 (1 socket) 9 (2 socket)	7 (1-socket) 11 (2-socket)	11
System unit disk/SSD bays with standard or split backplane	12 SFF-3 or 6+6 SFF-3	12 SFF-3 or 6+6 SFF-3	4-core: 10 or 5+5 SFF-3 6/8-core: 12 SFF-3 Or 6+6 SFF-3	12 SFF-3 or 6+6 SFF-3	12 SFF-3 or 6+6 SFF-3	12 SFF-3
System unit disk/SSD bays with expanded function backplane[3]	8 SFF-3	8 SFF-3 plus 6 1.8-inch SSD bays	4-core: 10 SFF-3 6/8-core: 18 SFF-3	8 SFF-3 plus 6 1.8-inch SSD bays	18 SFF-3 plus 8 1.8-inch SSD bays	N/A
Max EXP24S storage drawers	14	14	4-core: n/a 6/8-core: 14	14	14	N/A
Max total system unit plus EXP24S disk/SSD	348	348	4-core: 10 6/8-core: 348	348	348	N/A
Max total system TB with 1.2TB drives[2]	417 TB	417 TB	4-core: 3.0 TB [4] 6/8-core: 417 TB	417 TB	417 TB	14.4 TB
AIX® rPerf Range	N/A	N/A	66.9 – 143.9	120.8 – 346.7	120.8 – 421.9	N/A
IBM i® CPW Range	N/A	N/A	39,500 - 85,500	N/A	72,000 - 230,500	N/A
Capacity on Demand	N/A	N/A	N/A	N/A	N/A	N/A
Warranty, base service level [5]	3-yr 9x5, next business day	3-yr 9x5, next business day	3-yr 9x5, next business day	3-yr 9x5, next business day	3-yr 9x5, next business day	3-yr 9x5, next business day
Max partitions	240	480	160	400	480	N/A
IBM i level	N/A	N/A	7.1, 7.2 *	N/A *	7.1, 7.2 *	N/A
AIX level	N/A	N/A	6.1, 7.1 *	6.1, 7.1 *	6.1, 7.1 *	N/A
Linux support	SLES 11 * RHEL 6.5 * Ubuntu 14.04 *	SLES 11 * RHEL 6.5 * Ubuntu 14.04 *	SLES 11 * RHEL 6.5 *	SLES 11 * RHEL 6.5 *	SLES 11 * RHEL 6.5 *	Ubuntu 14.10*
PowerVM™ Standard	Optional	Optional	Optional	Optional	Optional	N/A
PowerVM Enterprise	Optional	Optional	Optional	Optional	Optional	N/A
Systems Director Editions (w/VMControl™)	Optional	Optional	Optional	Optional	Optional	N/A
Machine type – model	8247-21L	8247-22L	8286-41A	8284-22A	8286-42A	8247-42L

1. One x8 PCIe slot must contain an Ethernet LAN available for client use (4-port 1GbE or 2-port 10/1GbE)
2. Use of expanded function storage backplane uses one PCIe slot in 2U servers and optionally uses a PCIe slot in 4U servers
3. Backplane provides dual high performance SAS controllers with 1.8GB write cache expanded up to 7.2GB with compression plus Easy Tier capability plus two SAS ports for running an EXP24S drawer. SAS ports are optional on a 4U server.
4. 4-core Power S814 maximum capacity disk drive in system unit is 300GB. Or 387GB SSD can be used for a higher capacity in the system unit.
5. Warranty and base service level are USA definitions and may vary in other countries
* Or later

Power Enterprise Systems	Power E870	Power E880
System package	5U / node, 19" rack 2U system control unit	5U / node, 19" rack 2U system control unit
Number of system nodes	1 or 2	1, 2, 3 or 4
# of processor sockets	4 or 8	4, 8, 12 or 16
POWER8 Processor Options [a] GHz : # of cores	4.02 GHz : 32 or 64 4.19 GHz : 40 or 80 Min 8 cores active	4.35 GHz : 32,64, 96, or 128 SOD Xxx GHz: 48, 96, 144, 192 Min 8 cores active
Min - Max memory (min % active) 1066 MHz CDIMMs	256 GB - 4 TB [b] (50%) Max 2TB per system node	256 GB - 16 TB (50%) Max 4TB per system node
System node disk/SSD bays	N/A - Use EXP24S or SAN	N/A - Use EXP24S or SAN
System node Gen3 PCIe x16 slots	16 slots with two nodes 8 per node	32 slots with four nodes 8 per node
Max PCI3 Gen3 I/O drws	2 per system node [c]	2 per system node [c]
Max PCIe slots: System node plus Gen3 PCIe I/O drawers	56 (8 node + 48 drawer) [c]	112 (16 node + 96 drawer) [c]
Max EXP24S storage drawers	64	64
Max SAS bays for disk or SSD	1536	1536
Max total system TB with 1.2TB drives	1843 TB	1843 TB
AIX rPerf Range	674 – 1,711	716 – 1,432 [d]
IBM i CPW Range	359000 - 911000	381000 - 755000 [d]
Capacity on Demand options	CUoD, Elastic, Utility, Trial for processor & memory	CUoD, Elastic, Utility, Trial for processor & memory
Warranty & Base Service Level [e]	1-yr 24x7, 4-hour service objective	1-yr 24x7, 4-hour service objective
Max partitions	1000	1000
IBM i level	7.1, 7.2 *	7.1, 7.2 *
AIX level	6.1, 7.1 *	6.1, 7.1 *
Linux support	RHEL 6.5 * SLES 11 *	RHEL 6.5 * SLES 11 *
PowerVM Enterprise	Std	Std
Systems Director Editions (w/ VMControl)	Opt	Opt
Machine type - model	9119-MME	9119-MHE

a - Power E880 3rd and 4th node configurations will be orderable in 2015 and planned general availability is June 2015.
b - See SOD made in October announcement letters about planned 48-core drawer on Power E880 and larger memory capacity on E870.
c – See SOD made in October announcement letters about planned increase in the number of PCIe Gen3 I/O drawers
d – rPerf and CPW values for the Power E880 3rd and 4th node configurations are not yet published.   Values shown are for one and two node configurations only.
e - Warranty and base service level are USA definitions and may vary in other countries
*   Or later

RAS and Other Features

	Power S812L S222L	Power S822	Power S814 S824	Power S824L	Power E870 E880
Redundant / Hot Swap Fans & Blowers	Std	Std	Std	Std	Std
Hot Swap Disk/SSD Bays	Std	Std	Std	Std	N/A
Hot Swap DVD Bay	Std	Std	Std	Std	Std
Hot Swap PCIe Adapters	Std #	Std	Std	N/A	Std
Concurrent Firmware Update	Std #	Std	Std	N/A	Std
Redundant / Hot Swap Power Supplies	Std	Std	Std	Std	Std
Dual disk controllers (split backplane for AIX, IBM i, Linux)	Opt	Opt	Opt	N/A	N/A
Processor Instruction Retry	Std	Std	Std	Std	Std
Alternate Processor Recovery	Std	Std	Std	N/A	Std
Storage Keys (AIX only)	N/A	Std	Std	N/A	Std
Dynamic Processor Sparing	Std	Std	Std	Std	Std
PowerVM Live Partition Mobility / Live Application Mobility	Opt	Opt	Opt	N/A	Opt
PowerVM Active Memory™ Sharing[2]	Opt	Opt	Opt	N/A	Std
Dual VIOS	Opt #	Opt	Opt	N/A	Opt
Active Memory Expansion for AIX	N/A	Opt	Opt	N/A	Opt
Active Memory Mirroring for Hypervisor	N/A	N/A	N/A	N/A	Std
Chipkill Memory with Dynamic Bit Steering	Std	Std	Std	Std	Std
PowerVM Management (IVM / HMC)	I/H #	I/H	I/H	N/A	H
Redundant Service Processors	N/A	N/A	N/A	N/A	Std
Dynamic Service Processor Failover	N/A	N/A	N/A	N/A	Std
Redundant System Clocks	N/A	N/A	N/A	N/A	Std
Dynamic System Clock Failover	N/A	N/A	N/A	N/A	Std
Power Systems Enterprise Pools	N/A	N/A	N/A	N/A	Opt
Power IFL	-	N/A	N/A	-	Opt

-- Not available for PowerKVM™ environment

See the IBM Power Systems Facts and Features: Enterprise and Scale-out Systems document (POB03046-USEN) for more detailed information

For benchmark results, see   http://www.ibm.com/systems/power/hardware/reports/system_perf.html

Follow us on Twitter @IBMpowersystems
Learn more at www.ibm.com/power

Open innovation to put data to work across the enterprise