

# IBM Power™ Systems Family Quick Reference Guide

December 2009

									
	<b>BladeCenter® JS12 Express</b>	<b>BladeCenter JS22 Express</b>	<b>BladeCenter JS23 / JS43 Express</b>	<b>Power 520 Express</b>	<b>Power 550 Express</b>	<b>Power 560 Express</b>	<b>Power 570</b>	<b>Power 595</b>	
Machine type-model	7998-60X	7998-61X	JS23: 7778-23X JS43 = JS23 + FC 8446	8203-E4A	8204-E8A	8234-EMA	9117-MMA	9119-FHA	
System package	Blade Server/ BladeCenter	Blade Server/ BladeCenter	Blade Server BladeCenter	4U, 19" rack or tower	4U, 19" rack or tower	4U / node, 19" rack	4U / node, 19" rack	42U, 24" CEC frame	
# of cores (GHz & processor)	2 (3.8 GHz POWER6™)	4 (4.0 GHz POWER6)	JS23: 4 (4.2 GHz POWER6+)  JS43: 8 (4.2 GHz POWER6+)	1, 2 (4.2 GHz POWER6)  2, 4 (4.7 GHz POWER6+)	2, 4, 6, 8 (3.5/4.2 GHz POWER6)  2, 4, 6, 8 (5.0 GHz POWER6+)	4, 8, 16 (3.6 GHz POWER6+)	2 to 16 (3.5 GHz POWER6, 4.4/5.0 GHz POWER6+) <sup>1</sup> 4 to 32 (4.2 GHz POWER6+)	8 to 64 (4.2 GHz POWER6)  16 to 64 (5.0 GHz POWER6)	
Min <sup>2</sup> - max. memory	4 <sup>2</sup> – 64 GB	4 – 32 GB	JS23: 4–64GB JS43: 8-128GB	2 <sup>2</sup> – 64 GB (max 16 per core)	4 <sup>2</sup> – 256 GB (max 64 per proc card)	8 – 384 GB (max 96 per proc card)	2 – 768 GB (max 96 per proc card)	16 – 4096 GB (max 512 per proc book)	
Max CEC disk bays / TB storage	2 / 0.29	1 / 0.14	JS23: 1 / 0.14 JS43: 2 / 0.29	8 <sup>3</sup> / 2.7	8 <sup>3</sup> / 2.7	12 / 5.4 (6 / 2.7 per drawer)	24 / 10.8 (6 / 2.7 per drawer)	26 / 3.8 per PCIe I/O drawer	
Max CEC PCI slots	1 PCIe + 1 PCI-X	1 PCIe + 1 PCI-X	23/43: 2/4 PCIe	3 PCIe + 2 PCI-X DDR	3 PCIe + 2 PCI-X DDR	8 PCIe + 4 PCI-X DDR	16 PCIe + 8 PCI-X DDR	20 slots per 24" I/O drawer	
Max I/O loops (RIO and/or 12X)	0	0	0	1-core = 0 2-core = 1 4-core = 2	2-core = 1, 4->8-core= 2	4-core = 1, 8-core = 2, 16-core = 3	8 (1 per proc. card)	32 (4 per proc. book)	
Max 12X I/O drawers <sup>4</sup>	0	0	0	8 or 4	8 or 4	12 or 6	32 or 16	30 or 32	
Max RIO I/O drawers <sup>4</sup>	0	0	0	12	12	18 (AIX) 0 (IBM i)	48	12 (AIX) 96 (IBM i)	
Max disk bays with I/O drawers <sup>5</sup>	2 +12 bays if BladeCenter S	1 +12 bays if BladeCenter S	1/2 +12 bays if BladeCenter S	1-core = 8 2/4-core = 296	584	1332	1344	832 (AIX) 2200 (IBM i)	
Max PCI slots w/ 12X PCI-X I/O drawers	1 PCIe + 1 PCI-X	1 PCIe + 1 PCI-X	1	2 PCIe + 50 PCI-X DDR	1 PCIe + 50 PCI-X DDR	7 PCIe + 76 PCI-X DDR	12 PCIe + 200 PCI-X DDR	180 PCI-X + 420 PCI-X DDR	
Max PCI slots w/ 12X PCIe I/O drawers	1 PCIe + 1 PCI-X	1 PCIe + 1 PCI-X	1 PCIe + 1 PCI-X	42 PCIe + 2 PCI-X DDR	41 PCIe + 2 PCI-X DDR	67 PCIe + 4 PCI-X DDR	172 PCIe + 8 PCI-X DDR	640 PCIe	
AIX® rPerf  (Ranges shown for 520 to 595)	14.71	30.26	JS23: 36.28 JS43: 68.20	<u>4.2 GHz:</u> 8.39 - 31.48 <u>4.7 GHz:</u> 20.13 - 39.73	<u>3.5GHz:</u> 15.85 - 58.80 <u>4.2GHz:</u> 18.38 - 68.2 <u>5GHz:</u> 21.1 - 78.6	<u>3.6GHz:</u> 31.3 - 100.3	<u>3.5GHz:</u> 15.85 - 105.75 <u>5.0GHz:</u> 21.16 - 141.21 <u>4.2GHz(4-32):</u> 35.5 - 193.25	<u>4.2GHz:</u> 75.58 - 479.89 <u>5.0GHz:</u> 164.67 - 553.01	
IBM i CPW  (Ranges shown for 520 to 595)	7100	13800	JS23: 14400 JS43: 24050	<u>4.2 GHz:</u> 4300 - 15600 <u>4.7 GHz:</u> 9500 - 18300	<u>3.5GHz:</u> 7750-27600 <u>4.2GHz:</u> 9200-32650 <u>5GHz:</u> 10600-37950	<u>3.6GHz:</u> 14100-48500	<u>3.5GHz:</u> 8150-57600 <u>5.0GHz:</u> 11000-77600 <u>4.2GHz (4-32):</u> 16200-104800	<u>4.2GHz:</u> 35500-256200 <u>5.0GHz:</u> 41000-294700	
CoD options	N/A	N/A	N/A	N/A <sup>9</sup>	N/A <sup>9</sup>	N/A	CUoD, On/Off, Utility, Trial	CUoD, On/Off, Utility, Trial	
Warranty	3-year 9x5 next business day			1-year 9x5 next business day			1-year 24x7		
Max partitions AIX+IBM i + Linux®	20	40	40 (23) 80 (43)	40	80	160	160	254	
IBM i level & tier	6.1 P05	6.1 P10	6.1 P10	5.4, 6.1 P05 / P10	5.4 <sup>6</sup> , 6.1 P20	6.1 P20	5.4, 6.1 P30	5.4, 6.1 P50	
AIX level & group	5.3, 6.1 C5	5.3, 6.1 C5	5.3, 6.1 C5	5.3, 6.1 D5	5.3, 6.1 E5	5.3, 6.1 E5	5.2 <sup>7</sup> , 5.3, 6.1 F5	5.3, 6.1 H5	

	BladeCenter JS12	BladeCenter JS22	BladeCenter JS23 & JS43	Power 520	Power 550	Power 560	Power 570	Power 595
Linux support	RHEL 4.6 RHEL 5.1 SLES 10 SP2 SLES 11	RHEL 4.6 RHEL 5.1 SLES 10 SP2 SLES 11	RHEL 4.6 RHEL 5.1 SLES 10 SP2 SLES 11	RHEL 4.5 RHEL 5.1 SLES 10 SP1 SLES 11	RHEL 4.5 RHEL 5.1 SLES 10 SP1 SLES 11	RHEL 4.5 RHEL 5.1 SLES 10 SP1 SLES 11	RHEL 4.5 RHEL 5.1 SLES 10 SP1 SLES 11	RHEL 4.6 RHEL 5.2 SLES 10 SP2 SLES 11
PowerVM™ Express	N/A	N/A	N/A	Optional	Optional	N/A	N/A	N/A
PowerVM Standard	Standard	Standard	Standard	Optional <sup>8</sup>	Optional <sup>8</sup>	Optional	Optional	Optional
PowerVM Enterprise	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional

A Power 575 column is not shown due to space constraints in this document. The Power 575 is a high performance cluster built on POWER6 technology and is designed for HPC and other compute intensive workloads. See the detailed Facts/Features document for Power 575 information. Not all numbers apply to all operating systems.

- 1 Power 570 2 – 16 core 4.2 GHz and 4.7 GHz withdrawn from marketing 2009
- 2 JS12 BladeCenter, Power 520, Power 550 DIMM options changed 1H09 for newly shipped servers increasing minimum. Values shown are the new minimums.
- 3 Power 520 and 550 can have either eight disk SAS SFF disk slots or six 3.5-inch SAS disk slots
- 4 Assuming maximum number of I/O loops, second number indicates number of PCIe 12X I/O drawers
- 5 Ignoring SAN drives, using the maximum whether SAS or SCSI, ignoring IBM i disk controller implications
- 6 The Power 550 5.0 GHz require IBM i 6.1 at a minimum (Power 520 4.7 GHz no longer requires IBM i 6.1 as of December 2009)
- 7 AIX 5.3 or higher needed for the 4.2, 4.4 and 5.0 GHz Power 570 processors announced October 2008
- 8 IBM i edition may require PowerVM Standard or higher as a minimum
- 9 Power 520 (9408-M25) and Power 550 (9409- M50) do provide CoD options

RAS Features	Power 520	Power 550	Power 560	Power 570	Power 595
Redundant / Hot Swap Fans & Blowers	Std	Std	Std	Std	Std
Hot Swap DASD / Media / PCI Adapters	Std	Std	Std	Std	Std
Concurrent Firmware Update	Std	Std	Std	Std	Std
Redundant / Hot Swap Power Supplies	Opt	Opt	Std	Std	Std
Dual disk controllers (split backplane for AIX)	Opt	Opt	Opt	Opt	Std
Processor Instruction Retry / Alternate Processor Recovery	Std	Std	Std	Std	Std
Storage Keys	Std	Std	Std	Std	Std
PowerVM Live Partition Mobility/Live Application Mobility	Opt	Opt	Opt	Opt	Opt
PowerVM Active Memory Sharing	Opt	Opt	Opt	Opt	Opt
Redundant Service Processors	N/A	N/A	Std*	Std*	Std
Redundant System Clocks	N/A	N/A	Std*	Std*	Std
Redundant / Hot Swap Power Regulators	N/A	N/A	Std	Std	Std
Dynamic Processor Sparing	N/A	N/A	N/A	Opt	Opt
Memory Sparing	N/A	N/A	N/A	Opt	Opt
Hot GX Adapter Add and Cold Repair	N/A	N/A	N/A	Std	Std
Hot-node Add / Cold-node Repair	N/A	N/A	N/A	Std	Std*
Hot-node Repair / Hot-memory Add	N/A	N/A	N/A	Std*	Std*
POWER6 Enhanced Memory	N/A	N/A	N/A	Std	Std
Chipkill Memory with Dynamic Bit Steering	Std	Std	Std	Std	Std
Dynamic System Clock Failover	N/A	N/A	N/A	N/A	Std
Hot-node Repair / Hot-memory Add for all nodes	N/A	N/A	N/A	N/A	Std*
Mid-plane connection for inter-nodal communication	N/A	N/A	N/A	N/A	Std

\* Requires two or more nodes. See the Power Systems Facts and Features document (G320-9878 or POB03004-USEN ) for more detailed information  
For more benchmark results, see [http://www.ibm.com/systems/power/hardware/reports/system\\_perf.html](http://www.ibm.com/systems/power/hardware/reports/system_perf.html)  
The IBM Power Systems home page on the Internet can be found at: [ibm.com/systems/power/](http://ibm.com/systems/power/)

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Commercial Processing Workload (CPW) is a relative measure of performance of systems running the IBM i operating system. rPerf (Relative Performance) is an estimate of commercial processing performance relative to other IBM UNIX systems. Actual performance will vary based on application and configuration specifics.