

IBM POWER7® Systems Express Family Quick Reference Guide

October 2010

									
	BladeCenter® PS700 Express	BladeCenter PS701 Express	BladeCenter PS702 Express	Power® 710 Express	Power 720 Express	Power 730 Express	Power 740 Express	Power 750 Express	
System package	Blade Server / BladeCenter	Blade Server / BladeCenter	Blade Server / BladeCenter	2U, 19" rack	4U, 19" rack or tower	2U, 19" rack	4U, 19" rack or tower	4U, 19" rack	
# of processor sockets	1	1	2	1	1	2	1 or 2	1, 2, 3, 4	
Processor Options - GHz (cores/socket) - # of cores	3.0 GHz (4-core) 4	3.0 GHz (8-core) 8	3.0 GHz (8-core) 16	3.0 GHz (4-core) 4 3.7 GHz (6-core) 6 3.55 GHz (8-core) 8	3.0 GHz (4-core) 4 3.0 GHz (6-core) 6 3.0 GHz (8-core) 8	3.0 GHz (4-core) 8 3.7 GHz (4-core) 8 3.7 GHz (6-core) 12 3.55 GHz (8-core) 16	3.3 GHz (4-core) 4, 8 3.7 GHz (4-core) 4, 8 3.7 GHz (6-core) 6, 12 3.55 GHz (8-core) 8, 16	3.0 GHz (8-core) 8, 16, 24, 32 3.3 GHz (6-core) 6, 12, 18, 24 3.3 GHz (8-core) 8, 16, 24, 32 3.55 GHz (8-core) 8, 16, 24, 32	
Min - max. memory (clock freq MHz)	8 - 64 GB (1066)	16 - 128 GB (1066)	32 - 256 GB (1066)	4 - 64 GB (1066)	4-core 8 - 64 GB (1066) 6- or 8-core 8 - 128 GB (1066)	8 - 128 GB (1066)	8 - 256 GB (1066)	8 - 512 GB (1066)	
Max CEC disk bays / TB storage	2 / 1.2 TB	1 / 600 GB	2 / 1.2 TB	6 / 1.8 TB	8 / 2.4 TB	6 / 1.8 TB	8 / 2.4 TB	8 / 2.4 TB	
Max CEC PCI slots	Expansion Cards 1 PCIe CIOv 1 PCIe CFFh	Expansion Cards 1 PCIe CIOv 1 PCIe CFFh	Expansion Cards 2 PCIe CIOv 2 PCIe CFFh	4 PCIe LP	4 PCIe + 4 PCIe LP (opt.)	4 PCIe LP	4 PCIe + 4 PCIe LP (opt.)	3 PCIe and 2 PCI-X DDR	
Max GX adapter slots	N/A	N/A	N/A	1 GX++	1 GX++ ¹ (6- or 8-core systems only)	2 GX++	2 GX++ ¹	1 socket 1 GX+ 2 or more sockets 1 GX++ and 1 GX+	
Max 12X I/O PCIe dnwrs	N/A	N/A	N/A	N/A	2 ²	N/A	4	4	
Max 12X I/O PCI-X dnwrs	N/A	N/A	N/A	N/A	4 ²	N/A	8	8	
Max disk bays w/ I/O drawers	2 + 12 bays if BladeCenter S	1 + 12 bays if BladeCenter S	2 + 12 bays if BladeCenter S	102	380	102	416	584	
Max PCI slots w/ 12X PCI-X I/O drawers	N/A	N/A	N/A	N/A	4 PCIe and 24 PCI-X DDR	N/A	4 PCIe and 48 PCI-X DDR	1 PCIe and 50 PCI-X DDR	
Max PCI slots w/ 12X PCIe I/O drawers	N/A	N/A	N/A	N/A	24 PCIe	N/A	44 PCIe	41 PCIe and 2 PCI-X DDR	
AIX® rPerf Ranges	45.13	81.24	154.36	45.13 – 91.96	45.13 – 81.24	86.66 – 176.57	48.33 – 176.57	81.24 – 331.06	
IBM i CPW Ranges	21,100	42,100	76,300	23,800 – 51,800	23,800 – 46,300	44,600 – 97,700	25,500 – 97,700	44,600 – 181,000	
Capacity on Demand options	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Warranty	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	3-yr 9x5, next business day	1-yr 9x5, next business day	
Max partitions (10/core)	40	80	160	80	80	160	160	160 – 240/320 ³	
IBM i level & tier	6.1.1, 7.1 Small – P05	6.1.1, 7.1 Small – P10	6.1.1, 7.1 Small – P10	6.1.1, 7.1 Small -P05 (4-core) P10 (6- or 8-core)	6.1.1, 7.1 Small -P05 (4-core) P10 (6- or 8-core)	6.1.1, 7.1 Small – P20	6.1.1, 7.1 Small – P20	6.1.1, 7.1 Small - P20	
AIX level & group	5.3, 6.1, 7.1 Small	5.3, 6.1, 7.1 Small	5.3, 6.1, 7.1 Small	5.3, 6.1, 7.1 Small	5.3, 6.1, 7.1 Small	5.3, 6.1, 7.1 Small	5.3, 6.1, 7.1 Small	5.3, 6.1, 7.1 Small	
Linux support	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	
PowerVM™ Express	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	
PowerVM Standard	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	
PowerVM Enterprise	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	
Systems Director Editions (w/VMControl)	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	
Machine type - model	8406-70Y	8406-71Y	8406-71Y	8231-E2B	8202-E4B	8231-E2B	8205-E6B	8233-E8B	






¹ The GX++ slot on the Power 720 Express server and the second GX++ slot on the Power 740 Express server are not available if the optional four PCIe low profile slots are used.

² Not supported on 4-core Power 720 Express configurations.

³ IBM Statement of Direction to increase the maximum number of Micro-Partitions to 320 on the Power 750 Express server.

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	Power 755	Power 770	Power 780	Power 795	
System package	4U, 19" rack	4U / node, 19" rack (1 - 4 nodes)	4U / node, 19" rack (1 - 4 nodes)	24" system frame (1 - 8 processor books)	
# of processor sockets	4	2, 4, 6, 8	2, 4, 6, 8	4 - 32	
Processor Options - GHz (cores/socket) - # of cores	3.3 GHz (8-core) 32	3.1 GHz (8-core) 4 - 64 3.5 GHz (6-core) 4 - 48	3.86 GHz (8-core) 4 - 64 4.14 GHz (4-core) ¹ 4 - 32	3.7 GHz (6-core) 6 - 192 4.0 GHz (8-core) 8 - 256 4.25 GHz (4-core) ² 24 - 128	
Min - max. memory (clock freq MHz)	128 - 256 GB (1066)	32 GB - 2 TB (1066)	32 GB - 2 TB (1066)	32 GB - 8 TB (1066)	
Max CEC disk bays / TB storage	8 / 2.4 TB	Max per node 6 / 1.8 TB Max per sys 24 / 7.2 TB	Max per node 6 / 1.8 TB Max per sys 24 / 7.2 TB	Use I/O drawers	
Max CEC PCI slots	3 PCIe and 2 PCI-X DDR	6 PCIe per node 24 per system	6 PCIe per node 24 per system	Use I/O drawers	
Max GX adapter slots	1 GX++	2 GX++ per node Max per system = 8	2 GX++ per node Max per system = 8	4 GX++ per proc. book Max per system = 32	
Max 12X I/O PCIe drwrs	0	16	16	32	
Max 12X I/O PCI-X drwrs	0	32	32	32	
Max disk bays w/ I/O drawers	164	1320	1320	3052	
Max PCI slots w/ 12X PCI-X I/O drawers	3 PCIe and 2 PCI-X DDR	24 PCIe and 192 PCI-X DDR	24 PCIe and 192 PCI-X DDR	640	
Max PCI slots w/ 12X PCIe I/O drawers	3 PCIe and 2 PCI-X DDR	184 PCIe	184 PCIe	640	
AIX® rPerf Ranges	N/A	140.75 - 579.39	115.86 - 685.09	273.51 - 2978.16	
IBM i CPW Ranges	N/A	73,100 - 292,700	57,450 - 343,050	149,100 and up ³	
Capacity on Demand options	N/A	CUoD, On/Off, Utility, Trial	CUoD, On/Off, Utility, Trial	CUoD, On/Off, Utility, Trial	
Warranty	1-yr 9x5, next business day	1-yr 9x5, next business day	1-yr 24x7, same day	1-yr 24x7, same day	
Max partitions (10/core)	32 (DLPAR Only)	254 - 480/640 ⁴	254 - 640 ⁴	254 - 1000 ⁴	
IBM i level & tier	N/A	6.1.1, 7.1 Medium - P30	6.1.1, 7.1 Large - P50	6.1.1, 7.1 Large - P50	
AIX level & group	5.3, 6.1, 7.1 Small	5.3, 6.1, 7.1 Medium	5.3, 6.1, 7.1 Large	5.3, 6.1, 7.1 Large	
Linux support	SLES 10 SP3 SLES 11 RHEL 5.5	SLES 10 SP3 SLES 11 RHEL 5.5	SLES 10 SP3 SLES 11 RHEL 5.5	SLES 10 SP3 SLES 11 SP1 RHEL 5.5	
PowerVM™ Express	N/A	N/A	N/A	N/A	
PowerVM Standard	N/A	Optional	Optional	Optional	
PowerVM Enterprise	N/A	Optional	Optional	Optional	
Systems Director Editions (w/VMControl)	Optional	Optional	Optional	Optional	
Machine type - model	8236-E8C	9117-MMB	9179-MHB	9119-FHB	

1 Each Power 780 3.86 GHz processor card has two sockets, with each socket having eight POWER7 processor cores. If run in optional TurboCore mode at 4.14 GHz, only half the cores in each socket are available.

2 Each Power 795 4.0 GHz processor book has four sockets, with each socket having eight POWER7 processor cores. If run in optional TurboCore mode at 4.25 GHz, half the cores in each socket are available.

3 CPW value shown for a 24-core 3.7 GHz configuration. Use IBM Systems Workload Estimator at <http://www.ibm.com/systems/support/tools/estimator> to configure larger systems.

4 IBM Statement of Direction to increase the maximum number of Micro-Partitions to 640 on Power 770 and 780 servers and to 1000 on the Power 795 server.

RAS Features	BlaceCenter PS700, PS701 and PS702	Power 710 Express	Power 720 Express	Power 730 Express	Power 740 Express	Power 750 Express	Power 755	Power 770	Power 780	Power 795
Redundant / Hot Swap Fans & Blowers	Std in chassis	Std	Std	Std	Std	Std	Std	Std	Std	Std
Hot Swap Disk Bays / Media	N/A	Std	Std	Std	Std	Std	Std	Std	Std	Std
Hot Swap PCI Adapters	N/A	N/A	N/A	N/A	N/A	Std	Std	Std	Std	Std
Concurrent Firmware Update	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std
Redundant / Hot Swap Power Supplies	Std in chassis	Opt	Opt	Std	Std	Std	Std	Std	Std	Std
Dual disk controllers (split backplane for AIX)	N/A	N/A	Opt	N/A	Opt	Opt	N/A	Std	Std	Std
Processor Instruction Retry / Alternate Processor Recovery	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std
Storage Keys (AIX only)	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std
NEBS compliant	N/A	N/A	N/A	N/A	N/A	Opt	N/A	N/A	N/A	N/A
PowerVM Live Partition Mobility/Live Application Mobility ¹	Opt	Opt	Opt	Opt	Opt	Opt	N/A	Opt	Opt	Opt
PowerVM Active Memory™ Sharing ²	Opt	Opt	Opt	Opt	Opt	Opt	N/A	Opt	Opt	Opt
Redundant Service Processors	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Std ³	Std ³	Std
Redundant System Clocks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Std ³	Std ³	Std
Redundant / Hot Swap Power Regulators	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Std	Std	Std
Dynamic Processor Sparing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Opt	Opt	Opt
Memory Sparing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Opt	Opt	Opt
Hot GX Adapter Add and Cold Repair	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Std	Std	Std ⁵
Cold-node Repair	Hot-swap Blades	N/A	N/A	N/A	N/A	N/A	N/A	Std ³	Std ³	Std
Hot-Node Add, Hot-Node Repair, Memory Upgrade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Std ^{3,4}	Std ^{3,4}	Std ⁵
Dynamic System Clock Failover	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Std ³	Std ³	Std
Chipkill Memory with Dynamic Bit Steering	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std
Active Memory Mirroring for Hypervisor	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Std

- 1 Live Partition Mobility/Live Application Mobility is not supported on IBM i.
- 2 Active Memory Sharing requires AIX 6.1 TL3, IBM i 6.1 or SUSE Linux Enterprise Server 11 for Power, or later.
- 3 Requires two or more nodes.
- 4 Hot-Node Add, Hot-Node Repair and Memory Upgrade on the Power 770 and Power 780 servers are planned for availability November 19, 2010.
- 5 Hot GX repair, Hot-Node Add, Hot-Node Repair and Memory Upgrade on the Power 795 server are planned for availability April 30, 2011.

See the Power Systems™ Facts and Features document for POWER7 servers (POB03022-USEN-00) for more detailed information

For more benchmark results, see 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/

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