# IBM POWER7™ Systems Family Quick Reference Guide

**February 2010**

| | Power® 750 Express | Power 755 | Power 770 | Power 780 |
|---|---|---|---|---|
| System package | 4U, 19" rack | 4U, 19" rack | 4U / node, 19" rack (1 – 4 nodes) | 4U / node, 19" rack (1 - 4 nodes) |
| # of POWER7™ cores (GHz) | **3.0/3.3 GHz**<br>8, 16, 24, 32<br>**3.3 GHz**<br>6, 12, 18, 24<br>**3.55 GHz**<br>32 | **3.3 GHZ**<br>32 | **3.1 GHz**<br>16, 32, 48, 64<br>**3.5 GHz**<br>12, 24, 36, 48 | **3.8 GHz**<br>16, 32, 48, 64<br>**4.1 GHz** [1]<br>8, 16, 24, 32 |
| # of sockets | 1, 2, 3, 4 | 4 | 2, 4, 6, 8 | 2, 4, 6, 8 |
| Min - max. memory | 8 [2] – 512 GB (max 128 per proc card) | 128 – 256 GB (max 64 per proc card) | 32 GB – 2 TB [3,4] (max 512 GB per node) | 32 GB – 2 TB [3,4] (max 512 GB per node) |
| Max CEC disk bays / TB storage | 8 / 2.4 TB | 8 / 2.4 TB | 6 per node / 1.8 TB<br>Max per sys 24 / 7.2 TB | 6 per node / 1.8 TB<br>Max per sys 24 / 7.2 TB |
| Max CEC PCI slots | 3 PCIe and<br>2 PCI-X DDR | 3 PCIe and<br>2 PCI-X DDR | 6 PCIe per node<br>24 per system | 6 PCIe per node<br>24 per system |
| Max GX adapter slots | 1 socket<br>1 GX+<br>2 or more sockets<br>1 GX++ and 1 GX+ | 1 GX++ | 2 GX++ per node<br>Max per system = 8 | 2 GX++ per node<br>Max per system = 8 |
| Max 12X I/O PCIe drwrs | 4 | 0 | 16 | 16 |
| Max 12X I/O PCI-X drwrs | 8 | 0 | 32 | 32 |
| Max disk bays w/ I/O drawers | 584 | 164 | 1320 | 1320 |
| Max PCI slots w/ 12X PCI-X I/O drawers | 1 PCIe and<br>50 PCI-X DDR | 3 PCIe and<br>2 PCI-X DDR | 24 PCIe and<br>192 PCI-X DDR | 24 PCIe and<br>192 PCI-X DDR |
| Max PCI slots w/ 12X PCIe I/O drawers | 41 PCIe and<br>2 PCI-X DDR | 3 PCIe and<br>2 PCI-X DDR | 184 PCIe | 184 PCIe |
| AIX® rPerf Ranges | **3.0 GHz:**<br>81.24 - 292.47<br>**3.3 GHz**:<br>70.07 - 313.15<br>**3. 55 GHz**:<br>331.06 | N/A | **3.1 GHz:**<br>165.30 – 579.39<br>**3.5 GHz**:<br>140.75 – 493.37 | **3.8 GHz:**<br>195.45 – 685.09<br>**4.1 GHz**:<br>115.86 – 425.50 |
| IBM i CPW Ranges | **3.0 GHz:**<br>44600 - 158300<br>**3.3 GHz**:<br>37200 - 168800<br>**3. 55 GHz**:<br>181000 | N/A | **3.1 GHz:**<br>88800 - 292700<br>**3.5 GHz**:<br>73100 -248550 | **3.8 GHz:**<br>105200 - 343050 |
| Capacity on Demand options | N/A | N/A | 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 9x5, next business day | 1-yr 24x7, same day |
| Max partitions (10/core) | 160 – 240/320 [5] | 32 (DLPAR Only) | 160 - 480/640 [5] | 160 - 640 [5] |
| IBM i level & tier | 6.1.1<br>Small - P20 | N/A | 6.1.1<br>Medium - P30 | 6.1.1<br>Large - P50 |
| AIX level & group | 5.3, 6.1<br>Small | 5.3, 6.1<br>Small | 5.3, 6.1<br>Medium | 5.3, 6.1<br>Large |
| Linux support | SLES 10 SP3<br>SLES 11<br>RHEL (SOD) [6] | SLES 10 SP3<br>SLES 11<br>RHEL (SOD) [6] | SLES 10 SP3<br>SLES 11<br>RHEL (SOD) [6] | SLES 10 SP3<br>SLES 11<br>RHEL (SOD) [6] |
| PowerVM™ Express | Optional | N/A | N/A | N/A |
| PowerVM Standard | Optional | N/A | Optional | Optional |
| PowerVM Enterprise | Optional | N/A | Optional | Optional |
| Systems Director Express (w/VMControl) | Included | Included | Included | Included |
| Systems Director Standard (w/VMControl) | Optional | Optional | Optional | Optional |
| Systems Director Enterprise (w/VMControl) | Optional | Optional | Optional | Optional |

1 The Power 780 processor card (one per node) has 16 POWER7 processor cores. If run in optional TurboCore™ mode at 4.1 GHz, only half the cores are available.
2 The 8 GB (2 x 4 GB) memory feature on Power 750 Express and Power 755 is planned for availability March 16, 2010.
3 The 128 GB (4 x 32 GB) memory feature on Power 770 and Power 780 is planned for availability November 19, 2010.
4 Maximum memory capacity on Power 770 and Power 780 is 1 TB at 1066 MHz and 2 TB at 800 MHz.
5 IBM Statement of Direction to increase the maximum number of Micro-Partitions to 320 on the Power 750 server and to 640 on Power 770 and 780 servers.
6 IBM is working with Red Hat on POWER7 support. Red Hat plans to support the Power 750, 755, 770, and 780 models in an upcoming release targeted for availability during the 1st half of 2010. For additional questions on the availability of this release, please contact Red Hat.

| RAS Features | Power 750 Express | Power 755 | Power 770 | Power 780 |
|---|---|---|---|---|
| **Redundant / Hot Swap Fans & Blowers** | Std | Std | Std | Std |
| **Hot Swap DASD / Media / PCI Adapters** | Std | Std | Std | Std |
| **Concurrent Firmware Update** | Std | Std | Std | Std |
| **Redundant / Hot Swap Power Supplies** | Std | Std | Std | Std |
| **Dual disk controllers (split backplane for AIX)** | Opt | N/A | Std | Std |
| **Processor Instruction Retry / Alternate Processor Recovery** | Std | Std | Std | Std |
| **Storage Keys (AIX only)** | Std | Std | Std | Std |
| **PowerVM Live Partition Mobility/Live Application Mobility**[1] | Opt | N/A | Opt | Opt |
| **PowerVM Active Memory™ Sharing**[2] | Opt | N/A | Opt | Opt |
| **Redundant Service Processors** | N/A | N/A | Std[3] | Std[3] |
| **Redundant System Clocks** | N/A | N/A | Std[3] | Std[3] |
| **Redundant / Hot Swap Power Regulators** | N/A | N/A | Std | Std |
| **Dynamic Processor Sparing** | N/A | N/A | Opt | Opt |
| **Memory Sparing** | N/A | N/A | Opt | Opt |
| **Hot GX Adapter Add and Cold Repair** | N/A | N/A | Std | Std |
| **Hot-Node Add**[4] **/ Cold-node Repair** | N/A | N/A | Std[3] | Std[3] |
| **Hot-Node Repair**[4] **/ Memory Upgrade**[4] | N/A | N/A | Std[3] | Std[3] |
| **Dynamic System Clock Failover** | N/A | N/A | Std[3] | Std[3] |
| **Chipkill Memory with Dynamic Bit Steering** | Std | Std | Std | Std |

1 Live Partition Mobility/Live Application Mobility is not supported on IBM i 6.1.
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 are planned for availability November 19, 2010.

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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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.

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