



# IBM @server p5 and pSeries Facts and Features

*October 5, 2004*



**Entry rack/deskside**

p5-520

p5-550

pSeries 615

pSeries 630

**Mid-range**

p5-570

pSeries 650

pSeries 670

**High-end**

pSeries 655

pSeries 690

| <b>Product line</b>  | <b>IBM @server@ pSeries® 615</b> | <b>IBM @server pSeries 615</b>  |
|--|----------------------------------|---------------------------------|
| Machine type   | 7029-6E3                         | 7029-6C3                        |
| System packaging   | deskside                         | 19" rack drawer (4U)            |
| <b>Microprocessor type</b>                                     | 64-bit POWER4+™                  | 64-bit POWER4+                  |
| # of processors/system   | 1 or 2                           | 1 or 2                          |
| Clock rates available  | 1.2 GHz / 1.45 GHz <sup>n</sup>  | 1.2 GHz / 1.45 GHz <sup>n</sup> |
| <b>System memory (standard - maximum)</b>                      | 1GB - 16GB <sup>a</sup>          | 1GB - 16GB <sup>a</sup>         |
| Data - instruction (L1) cache                                  | 32KB - 64KB <sup>b</sup>         | 32KB - 64KB <sup>b</sup>        |
| Level 2 (L2) cache   | 1.5MB <sup>g</sup>               | 1.5MB <sup>g</sup>              |
| Level 3 (L3) cache   | 8MB <sup>g</sup>                 | 8MB <sup>g</sup>                |
| <b>Reliability, availability, serviceability</b>               |                                  |                                 |
| Chipkill™ memory   | X                                | X                               |
| Service processor  | X                                | X                               |
| Hot-swappable disks (internal and external)                    | X                                | X                               |
| Dynamic Processor Deallocation                                 | X                                | X                               |
| Dynamic deallocation: PCI bus slots                            | X                                | X                               |
| Hot-plug slots   | X                                | X                               |
| Blind-swap slots   | -                                | -                               |
| Redundant hot-plug power                                       | O                                | O                               |
| Redundant hot-plug cooling                                     | X                                | X                               |
| NEBS3  | -                                | -                               |
| <b>Capacity</b>  |                                  |                                 |
| Capacity on Demand (CoD) features                              | -                                | -                               |
| Maximum logical partitions/Micro-Partitions                    | -                                | -                               |
| Advanced POWER™ Virtualization                                 | -                                | -                               |
| Maximum available PCI slots                                    | 6 (2 32-bit, 4 64-bit)           | 6 (2 32-bit, 4 64-bit)          |
| Maximum PCI bus speed (MHz)                                    | 133                              | 133                             |
| Disk   media bays  | 8   3                            | 8   3                           |
| Minimum   maximum internal disk storage                        | 36.4GB   1.1TB                   | 36.4GB   1.1TB                  |
| Required   optional I/O drawers                                | -                                | -                               |
| <b>Storage interfaces (maximum<sup>e,x</sup>)</b>              |                                  |                                 |
| 6204 - Ultra SCSI Differential - PCI                           | 6                                | 6                               |
| 6203 - 2-channel Ultra3 SCSI - PCI                             | 3                                | 3                               |
| 5710/5712 - 2-channel Ultra320 SCSI - PCI-X                    | 3                                | 3                               |
| 5703/5711 - 2-channel Ultra320 RAID - PCI-X                    | 3                                | 3                               |
| 6230 SSA - Advanced SerialRAID Plus                            | 3                                | 3                               |
| 6239/5716 - 2 Gigabit Fibre Channel - PCI-X                    | 4                                | 4                               |
| <b>Communications and connectivity (maximum<sup>e,x</sup>)</b> |                                  |                                 |
| 2738/2962 - 2/4-port Multiprotocol PCI                         | 3                                | 3                               |
| 2943 - 8-port Asynchronous – EIA-232 / RS-422                  | 6                                | 6                               |
| 2944 - 128-port Asynchronous Controller                        | 6                                | 6                               |
| 4959 - Token-Ring 4/16 Mbps                                    | 6                                | 6                               |
| 4961 - 4-port 10/100 Mbps Ethernet                             | 3                                | 3                               |
| 4962 - 10/100 Mbps Ethernet PCI II                             | 6                                | 6                               |
| 5701 - 10/100/1000 Mbps Base-TX Ethernet PCI-X                 | 4                                | 4                               |
| 5706 - 2-port 10/100/1000 Mbps Base-TX Ethernet                | 4                                | 4                               |
| 5700 - Gigabit Ethernet-SX PCI-X (Fibre)                       | 4                                | 4                               |
| 5707 - 2-port Gigabit Ethernet-SX PCI-X (Fibre)                | 4                                | 4                               |
| 5718 - 10 Gigabit Ethernet - PCI-X                             | 1                                | 1                               |
| 8398 - SP™ Switch2 System Attachment                           | -                                | -                               |
| pSeries High Performance Switch Network Interface              | -                                | -                               |
| 2751 - ESCON® Channel PCI <sup>k</sup>                         | -                                | -                               |
| 2732 - HiPPI <sup>k</sup>                                      | 2                                | 2                               |
| 6312 - Quad Digital Trunk Telephony PCI <sup>k</sup>           | 3                                | 3                               |
| 4960 - e-business Cryptographic Accelerator                    | 6                                | 6                               |
| 4963 - PCI Cryptographic Coprocessor (FIPS-4)                  | -                                | -                               |
| <b>Display adapter (maximum)</b>                               | GXT135P (4)                      | GXT135P (4)                     |
| <b>Benchmarks (AIX 5L™)</b>                                    | (1, 2-way)                       | (1, 2-way)                      |
| SPECweb99  | -                                | -                               |
| SPECint_base2000   | 739 / -                          | 739 / -                         |
| SPECfp_base2000  | 966 / -                          | 966 / -                         |
| SPECint_rate_base2000  | -, 15.2 / -, -                   | -, 15.2 / -, -                  |
| SPECfp_rate_base2000   | -, 17.5 / -, -                   | -, 17.5 / -, -                  |
| SPECjbb2000  | -                                | -                               |
| TPC-C: tpmC; \$/tpmC   | -                                | -                               |
| rPerf  | 2.50, 4.00 / -, 4.41             | 2.50, 4.00 / -, 4.41            |

| <b>Product line</b>  | <b>IBM @server p5 520 Express</b>   | <b>IBM @server p5 520</b>            |
|--|-------------------------------------|--------------------------------------|
| Machine type   | 9111-520                            | 9111-520                             |
| System packaging   | deskside or<br>19" rack drawer (4U) | deskside or<br>19" rack drawer (4U)  |
| <b>Microprocessor type</b>                                     | 64-bit IBM POWER5™                  | 64-bit POWER5                        |
| # of processors/system   | 1 or 2                              | 2                                    |
| Clock rates available  | 1.5 GHz                             | 1.65 GHz                             |
| <b>System memory (standard - maximum)</b>                      | 512MB - 32GB <sup>a</sup>           | 1GB <sup>s</sup> - 32GB <sup>a</sup> |
| Data - instruction (L1) cache                                  | 32KB - 64KB <sup>b</sup>            | 32KB - 64KB <sup>b</sup>             |
| Level 2 (L2) cache   | 1.9MB <sup>g</sup>                  | 1.9MB <sup>g</sup>                   |
| Level 3 (L3) cache   | 36MB <sup>g,gg</sup>                | 36MB <sup>g</sup>                    |
| <b>Reliability, availability, serviceability</b>               |                                     |                                      |
| Chipkill memory  | X                                   | X                                    |
| Service processor  | X                                   | X                                    |
| Hot-swappable disks (internal and external)                    | X                                   | X                                    |
| Dynamic Processor Deallocation                                 | X                                   | X                                    |
| Dynamic deallocation: PCI bus slots                            | X                                   | X                                    |
| Hot-plug slots   | X                                   | X                                    |
| Blind-swap slots   | -                                   | -                                    |
| Redundant hot-plug power                                       | O                                   | O                                    |
| Redundant hot-plug cooling                                     | X                                   | X                                    |
| NEBS3  | -                                   | -                                    |
| <b>Capacity</b>  |                                     |                                      |
| Capacity on Demand (CoD) features                              | -                                   | -                                    |
| Maximum logical partitions/Micro-Partitions                    | 20                                  | 20                                   |
| Advanced POWER Virtualization                                  | O                                   | O                                    |
| Maximum available PCI slots                                    | 34 (64-bit) <sup>e</sup>            | 34 (64-bit) <sup>e</sup>             |
| Maximum PCI bus speed (MHz)                                    | 133                                 | 133                                  |
| Disk   media bays  | 56 <sup>e</sup>   3                 | 56 <sup>e</sup>   3                  |
| Minimum   maximum internal disk storage <sup>e</sup>           | 36.4GB   8.2TB                      | 36.4GB   8.2TB                       |
| Required   optional I/O drawers                                | 0   4                               | 0   4                                |
| <b>Storage interfaces (maximum<sup>e,x</sup>)</b>              |                                     |                                      |
| 6204 - Ultra SCSI Differential - PCI                           | 30                                  | 30                                   |
| 6203 - 2-channel Ultra3 SCSI - PCI                             | 28                                  | 28                                   |
| 5710/5712 - 2-channel Ultra320 SCSI - PCI-X                    | 32                                  | 32                                   |
| 5703/5711 - 2-channel Ultra320 RAID - PCI-X                    | 31                                  | 31                                   |
| 6230 - SSA Advanced SerialRAID Plus                            | 16                                  | 16                                   |
| 6239/5716 - 2 Gigabit Fibre Channel - PCI-X                    | 32                                  | 32                                   |
| <b>Communications and connectivity (maximum<sup>e,x</sup>)</b> |                                     |                                      |
| 2738/2962 - 2/4-port Multiprotocol PCI                         | 34                                  | 34                                   |
| 2943 - 8-port Asynchronous – EIA-232 / RS-422                  | 34                                  | 34                                   |
| 2944 - 128-port Asynchronous Controller                        | 34                                  | 34                                   |
| 4959 – Token-Ring 4/16 Mbps                                    | 32                                  | 32                                   |
| 4961 - 4-port 10/100 Mbps Ethernet                             | 28                                  | 28                                   |
| 4962 - 10/100 Mbps Ethernet PCI II                             | 34                                  | 34                                   |
| 5701 - 10/100/1000 Mbps Base-TX Ethernet PCI-X                 | 32                                  | 32                                   |
| 5706 - 2-port 10/100/1000 Mbps Base-TX Ethernet                | 32                                  | 32                                   |
| 5700 - Gigabit Ethernet-SX PCI-X (Fibre)                       | 32                                  | 32                                   |
| 5707 - 2-port Gigabit Ethernet-SX PCI-X (Fibre)                | 32                                  | 32                                   |
| 5718 10 Gigabit Ethernet - PCI-X                               | 6                                   | 6                                    |
| 8398 - SP Switch2 System Attachment                            | -                                   | -                                    |
| pSeries High Performance Switch Network Interface              | -                                   | -                                    |
| 2751- ESCON Channel PCI <sup>k</sup>                           | -                                   | -                                    |
| 2732- HiPPI <sup>k</sup>                                       | -                                   | -                                    |
| 6312 - Quad Digital Trunk Telephony PCI <sup>k</sup>           | 6                                   | 6                                    |
| 4960 - e-business Cryptographic Accelerator                    | -                                   | -                                    |
| 4963 - PCI Cryptographic Coprocessor (FIPS-4)                  | -                                   | -                                    |
| <b>Display adapter (maximum<sup>e,x</sup>)</b>                 | GXT135P (18)                        | GXT135P (18)                         |
| <b>Benchmarks (AIX 5L)</b>                                     | (1-, 2-way)                         |                                      |
| SPECweb99  | -                                   | -                                    |
| SPECint_base2000   | -                                   | 1,202                                |
| SPECfp_base2000  | 1,922 *                             | 2,034                                |
| SPECint_rate_base2000  | -, -                                | 30.3                                 |
| SPECfp_rate_base2000   | -, 41.6 *                           | 41.5                                 |
| SPECjbb2000  | -                                   | 75,607                               |
| TPC-C: tpmC; \$/tpmC   | -                                   | -                                    |
| rPerf  | 3.25, 9.13 <sup>o</sup>             | 9.86 <sup>o</sup>                    |

\* Submitted to SPEC; awaiting approval

| Product line  | IBM @server pSeries 630   | IBM @server pSeries 630   |
|---|---|---|
| Machine type  | 7028-6E4  | 7028-6C4  |
| System packaging  | deskside  | 19" rack drawer (4U)  |
| <b>Microprocessor type</b>                                      | 64-bit POWER4+  | 64-bit POWER4+  |
| # of processors/system  | 1, 2 or 4   | 1, 2 or 4   |
| Clock rates available   | 1.2 GHz / 1.45 GHz  | 1.2 GHz / 1.45 GHz  |
| <b>System memory (standard - maximum)</b>                       | 1GB - 32GB <sup>a, j</sup>  | 1GB - 32GB <sup>a, j</sup>  |
| Data - instruction (L1) cache                                   | 32KB - 64KB <sup>b</sup>  | 32KB - 64KB <sup>b</sup>  |
| Level 2 (L2) cache  | 1.5MB <sup>g</sup>  | 1.5MB <sup>g</sup>  |
| Level 3 (L3) cache  | 8MB <sup>g</sup>  | 8MB <sup>g</sup>  |
| <b>Reliability, availability, serviceability</b>                |   |   |
| Chipkill memory   | X   | X   |
| Service processor   | X   | X   |
| Hot-swappable disks (internal and external)                     | X   | X   |
| Dynamic Processor Deallocation                                  | X   | X   |
| Dynamic deallocation: PCI bus slots                             | X   | X   |
| Hot-plug slots  | X   | X   |
| Blind-swap slots  | -   | -   |
| Redundant hot-plug power  | O   | O   |
| Redundant hot-plug cooling                                      | X <sup>f</sup>  | X <sup>f</sup>  |
| NEBS3   | -   | X   |
| <b>Capacity</b>   |   |   |
| Capacity on Demand (CoD) features                               | -   | -   |
| Maximum logical partitions/Micro-Partitions                     | 3   | 4 <sup>e</sup>  |
| Advanced POWER Virtualization                                   | -   | -   |
| Maximum available PCI slots                                     | 6 (64-bit)  | 20 (64-bit) <sup>e</sup>  |
| Maximum PCI bus speed (MHz)                                     | 133   | 133   |
| Disk   media bays   | 4   2   | 28 <sup>e</sup>   2   |
| Minimum   maximum internal disk storage <sup>e</sup>            | 36.4GB   587.2GB  | 36.4GB   4.1TB  |
| Required   optional I/O drawers                                 | -   | 0   2   |
| <b>Storage interfaces (maximum<sup>e, x</sup>)</b>              |   |   |
| 6204 - Ultra SCSI Differential - PCI                            | 6   | 20  |
| 6203 - 2-channel Ultra3 SCSI - PCI                              | 6   | 20  |
| 5710/5712 - 2-channel Ultra320 SCSI - PCI-X                     | 5   | 19  |
| 5703/5711 - 2-channel Ultra320 RAID - PCI-X                     | 5   | 19  |
| 6230 - SSA Advanced SerialRAID Plus                             | 4   | 18  |
| 6239/5716 - 2 Gigabit Fibre Channel - PCI-X                     | 4   | 18  |
| <b>Communications and connectivity (maximum<sup>e, x</sup>)</b> |   |   |
| 2738/2962 - 2/4-port Multiprotocol PCI                          | 4   | 18  |
| 2943 - 8-port Asynchronous – EIA-232 / RS-422                   | 4   | 18  |
| 2944 - 128-port Asynchronous Controller                         | 4   | 18  |
| 4959 – Token-Ring 4/16 Mbps                                     | 6   | 20  |
| 4961 - 4-port 10/100 Mbps Ethernet                              | 6   | 20  |
| 4962 - 10/100 Mbps Ethernet PCI II                              | 6   | 20  |
| 5701 - 10/100/1000 Mbps Base-TX Ethernet PCI-X                  | 6   | 20  |
| 5706 - 2-port 10/100/1000 Mbps Base-TX Ethernet                 | 6   | 20  |
| 5700 - Gigabit Ethernet-SX PCI-X (Fibre)                        | 6   | 20  |
| 5707 - 2-port Gigabit Ethernet-SX PCI-X (Fibre)                 | 6   | 20  |
| 5718 10 Gigabit Ethernet - PCI-X                                | 1   | 3   |
| 8398 - SP Switch2 System Attachment                             | -   | 1   |
| pSeries High Performance Switch Network Interface               | -   | -   |
| 2751- ESCON Channel PCI <sup>k</sup>                            | -   | -   |
| 2732 - HiPPI <sup>k</sup>                                       | 2   | 2   |
| 6312 - Quad Digital Trunk Telephony PCI <sup>k</sup>            | 6   | 16  |
| 4960 - e-business Cryptographic Accelerator                     | 6   | 20  |
| 4963 - PCI Cryptographic Coprocessor (FIPS-4)                   | 6   | 16  |
| <b>Display adapter (maximum<sup>e, x</sup>)</b>                 | GXT135P (4), GXT4500P <sup>u</sup> (1),   | GXT135P (12)  |
| <b>Benchmarks (AIX 5L)</b>                                      | (1, 2, 4-way)   | (1, 2, 4-way)   |
| SPECweb99   | 6,895 <sup>r</sup>  | 6,895 <sup>r</sup>  |
| SPECint_base2000  | 884 <sup>r</sup>  | 884 <sup>r</sup>  |
| SPECfp_base2000   | 1,097 <sup>r</sup>  | 1,097 <sup>r</sup>  |
| SPECint_rate_base2000   | -, -, 35.8 <sup>r</sup>   | -, -, 35.8 <sup>r</sup>   |
| SPECfp_rate_base2000  | -, -, 38.1 <sup>r</sup>   | -, -, 38.1 <sup>r</sup>   |
| SPECjbb2000   | -   | -   |
| TPC-C: tpmC; \$/tpmC  | -   | -   |
| rPerf   | 2.94 <sup>r</sup> ,<br>(4.41 <sup>r</sup> / 6.07 <sup>r</sup> ) <sup>ee</sup> , 8.69 <sup>r</sup> | 2.94 <sup>r</sup> ,<br>(4.41 <sup>r</sup> / 6.07 <sup>r</sup> ) <sup>ee</sup> , 8.69 <sup>r</sup> |

| Product line  | IBM @server p5 550 Express          | IBM @server p5 550                  | IBM @server pSeries 650  |
|---|-------------------------------------|-------------------------------------|--|
| Machine type  | 9113-550                            | 9113-550                            | 7038-6M2   |
| System packaging  | deskside or<br>19" rack drawer (4U) | deskside or<br>19" rack drawer (4U) | 19" rack drawer<br>(8U - system / 4U - I/O <sup>bb</sup> )                       |
| <b>Microprocessor type</b>                                    | 64-bit POWER5                       | 64-bit POWER5                       | 64-bit POWER4+   |
| # of processors/system  | 1, 2 or 4                           | 2 or 4                              | 2, 4, 6, or 8  |
| Clock rates available   | 1.5 GHz                             | 1.65 GHz                            | 1.2 GHz / 1.45 GHz   |
| <b>System memory (standard - maximum)</b>                     | 512MB - 64GB <sup>a</sup>           | 1GB - 64GB <sup>a</sup>             | 2GB - 64GB <sup>a</sup>  |
| Data - instruction (L1) cache                                 | 32KB - 64KB <sup>b</sup>            | 32KB - 64KB <sup>b</sup>            | 32KB - 64KB <sup>b</sup>   |
| Level 2 (L2) cache  | 1.9MB <sup>g</sup>                  | 1.9MB <sup>g</sup>                  | 1.5MB <sup>g</sup>   |
| Level 3 (L3) cache  | 36MB <sup>g, 99</sup>               | 36MB <sup>g</sup>                   | 8MB / 32MB <sup>g</sup>  |
| <b>Reliability, availability, serviceability</b>              |                                     |                                     |  |
| Chipkill memory   | X                                   | X                                   | X  |
| Service processor   | X                                   | X                                   | X  |
| Hot-swappable disks (internal and external)                   | X                                   | X                                   | X  |
| Dynamic Processor Deallocation                                | X                                   | X                                   | X  |
| Dynamic deallocation: PCI bus slots                           | X                                   | X                                   | X  |
| Hot-plug slots  | X                                   | X                                   | X  |
| Blind-swap slots  | -                                   | -                                   | X  |
| Redundant hot-plug power                                      | O                                   | O                                   | X  |
| Redundant hot-plug cooling                                    | X                                   | X                                   | X  |
| NEBS3   | -                                   | -                                   | -  |
| <b>Capacity</b>   |                                     |                                     |  |
| Capacity on Demand (CoD) features                             | -                                   | P, R, OOP                           | P, M, OOP <sup>r</sup>   |
| Maximum logical partitions/Micro-Partitions                   | 40                                  | 40                                  | 8  |
| Advanced POWER Virtualization                                 | O                                   | O                                   | -  |
| Maximum available PCI slots                                   | 60 (64-bit) <sup>e</sup>            | 60 (64-bit) <sup>e</sup>            | 63 (1 32-bit, 62 64-bit) <sup>e</sup>  |
| Maximum PCI bus speed (MHz)                                   | 133                                 | 133                                 | 133  |
| Disk   media bays   | 104 <sup>e</sup>   3                | 104 <sup>e</sup>   3                | 100 <sup>e</sup>   2   |
| Minimum   maximum internal disk storage <sup>e</sup>          | 36.4GB   15.2TB                     | 36.4GB   15.2TB                     | 36.4GB   14.6TB  |
| Required   optional I/O drawers                               | 0   8                               | 0   8                               | 0   8  |
| <b>Storage interfaces (maximum <sup>e, x</sup>)</b>           |                                     |                                     |  |
| 6204 - Ultra SCSI Differential - PCI                          | 58                                  | 58                                  | 40   |
| 6203 - 2-channel Ultra3 SCSI - PCI                            | 56                                  | 56                                  | 30   |
| 5710/5712 - 2-chan. Ultra320 SCSI - PCI-X                     | 60                                  | 60                                  | 30   |
| 5703/5711 - 2-chan. Ultra320 RAID - PCI-X                     | 60                                  | 60                                  | 30   |
| 6230 - SSA Advanced SerialRAID Plus                           | 32                                  | 32                                  | 32   |
| 6239/5716 - 2 Gigabit Fibre Chan. - PCI-X                     | 60                                  | 60                                  | 46   |
| <b>Communications and connectivity (max. <sup>e, x</sup>)</b> |                                     |                                     |  |
| 2738/2962 - 2/4-port Multiprotocol PCI                        | 58                                  | 58                                  | 62   |
| 2943 - 8-port Asynchronous – EIA-232 / RS-422                 | 58                                  | 58                                  | 32   |
| 2944 - 128-port Asynchronous Controller                       | 58                                  | 58                                  | 32   |
| 4959 - Token-Ring 4/16 Mbps                                   | 60                                  | 62                                  | 30   |
| 4961 - 4-port 10/100 Mbps Ethernet                            | 56                                  | 56                                  | 20   |
| 4962 - 10/100 Mbps Ethernet PCI II                            | 60                                  | 60                                  | 55   |
| 5701 - 10/100/1000 Mbps Base-TX Ethernet                      | 60                                  | 60                                  | 30   |
| 5706 - 2-port 10/100/1000 Mbps Base-TX                        | 60                                  | 60                                  | 30   |
| 5700 - Gigabit Ethernet-SX PCI-X (Fibre)                      | 60                                  | 60                                  | 30   |
| 5707 - 2-port Gigabit Ethernet-SX PCI-X (Fibre)               | 60                                  | 60                                  | 30   |
| 5718 10 Gigabit Ethernet - PCI-X                              | 10                                  | 10                                  | 9  |
| 8398- SP Switch2 System Attachment                            | -                                   | -                                   | 2  |
| pSeries High Performance Switch Network                       | -                                   | -                                   | -  |
| 2751 - ESCON Channel PCI <sup>k</sup>                         | -                                   | -                                   | 8  |
| 2732 - HiPPI <sup>k</sup>                                     | -                                   | -                                   | 8 <sup>h</sup>   |
| 6312 - Quad Digital Trunk Telephony PCI <sup>k</sup>          | 35                                  | 35                                  | 28   |
| 4960 - e-business Crypto. Accelerator                         | 56                                  | 56                                  | 15   |
| 4963 - PCI Crypt. Coprocessor (FIPS-4)                        | 56                                  | 56                                  | 32   |
| <b>Display adapter (maximum <sup>e, x</sup>)</b>              | GXT135P (34)                        | GXT135P (34)                        | GXT135P (39)   |
| <b>Benchmarks (AIX 5L)</b>                                    | (1, 2, 4-way)                       | (2, 4-way)                          | (2, 4, 6, 8-way)   |
| SPECweb99   | -                                   | -                                   | 12,400 (8-way) <sup>r</sup>  |
| SPECint_base2000  | -                                   | 1,200                               | 909 <sup>r</sup>   |
| SPECfp_base2000   | 1,932 <sup>*</sup>                  | 2,121                               | 1,221 <sup>r</sup>   |
| SPECint_rate_base2000   | -, -, -                             | -, 60.4                             | 72.7 (8-way) <sup>r</sup>  |
| SPECfp_rate_base2000  | -, -, 77.0 <sup>*</sup>             | -, 82.1                             | 79.7 (8-way) <sup>r</sup>  |
| SPECjbb2000   | -                                   | -                                   | 114,892 (8-way) <sup>r</sup>   |
| TPC-C: tpmC; \$/tpmC  | -                                   | -                                   | -  |
| rPerf   | 3.25, 9.13, 18.20 <sup>o</sup>      | 9.86, 19.66 <sup>o</sup>            | 4.00, 8.05, 11.77, 15.49 <sup>v</sup> /<br>4.47, 9.12, 13.47, 18.67 <sup>r</sup> |

\* Submitted to SPEC; awaiting approval

| Product line   | IBM @server p5 570 Express       | IBM @server p5 570                               | IBM @server pSeries 655  |
|--|----------------------------------|--|--------------------------|
| Machine type   | 9117-570                         | 9117-570   | 7039-651                 |
| System packaging   | 19" rack drawer (4U)             | 19" rack drawer (4U)                             | 24" system frame         |
| <b>Microprocessor type</b>                                   | 64-bit POWER5                    | 64-bit POWER5                                    | 64-bit POWER4+           |
| # of processors/system                                       | 2, 4, 8                          | 2, 4, 8, 12 or 16                                | 4 or 8                   |
| Clock rates available  | 1.5 GHz                          | 1.65 GHz / 1.9 GHz                               | 1.7 GHz                  |
| <b>System memory (standard - maximum)</b>                    | 2GB - 256GB <sup>a</sup>         | 2GB - 512GB <sup>a,c</sup>                       | 4GB - 64GB <sup>a</sup>  |
| Data - instruction (L1) cache                                | 32KB - 64KB <sup>b</sup>         | 32KB - 64KB <sup>b</sup>                         | 32KB - 64KB <sup>b</sup> |
| Level 2 (L2) cache   | 1.9MB <sup>g</sup>               | 1.9MB <sup>g</sup>                               | 6.0MB <sup>g</sup>       |
| Level 3 (L3) cache   | 36MB <sup>g</sup>                | 36MB <sup>g</sup>                                | 128MB <sup>g</sup>       |
| <b>Reliability, availability, serviceability</b>             |                                  |  |                          |
| Chipkill memory  | X                                | X  | X                        |
| Service processor  | X                                | X  | X                        |
| Hot-swappable disks (internal and external)                  | X                                | X  | X                        |
| Dynamic Processor Deallocation                               | X                                | X  | X                        |
| Dynamic deallocation: PCI bus slots                          | X                                | X  | X                        |
| Hot-plug slots   | X                                | X  | X                        |
| Blind-swap slots   | X                                | X  | -                        |
| Redundant hot-plug power                                     | X                                | X  | X <sup>cc</sup>          |
| Redundant hot-plug cooling                                   | X                                | X  | X <sup>cc</sup>          |
| NEBS3  | -                                | -  | -                        |
| <b>Capacity</b>  |                                  |  |                          |
| Capacity on Demand (CoD) features                            | -                                | P, M <sup>d</sup> , R, OOP, OOM <sup>d</sup>     | -                        |
| Maximum logical partitions/Micro-Partitions                  | 80                               | 160  | 4                        |
| Advanced POWER Virtualization                                | O                                | O  | -                        |
| Maximum available PCI slots                                  | 95 (64-bit) <sup>e</sup>         | 163 (64-bit) <sup>e</sup>                        | 23 (64-bit) <sup>e</sup> |
| Maximum PCI bus speed (MHz)                                  | 133                              | 133  | 133                      |
| Disk   media bays  | 156 <sup>e</sup>   4             | 264 <sup>e</sup>   8                             | 18 <sup>e</sup>   -      |
| Minimum   maximum internal disk storage <sup>e</sup>         | 36.4GB   22.9TB                  | 36.4GB   38.7TB                                  | 72.8GB   2.6TB           |
| Required   optional I/O drawers                              | 0   12                           | 0   20   | 0   1                    |
| <b>Storage interfaces (maximum <sup>e,x</sup>)</b>           |                                  |  |                          |
| 6204 - Ultra SCSI Differential - PCI                         | 42                               | 42   | 13                       |
| 6203 - 2-channel Ultra3 SCSI - PCI                           | 95                               | 163  | 8                        |
| 5710/5712 - 2-channel Ultra320 SCSI - PCI-X                  | 95                               | 163  | 13                       |
| 5703/5711 - 2-channel Ultra320 RAID - PCI-X                  | 95                               | 163  | 13                       |
| 6230 - SSA Advanced SerialRAID Plus                          | 95                               | 104  | 8                        |
| 6239/5716 - 2 Gigabit Fibre Channel - PCI-X                  | 95                               | 163  | 20                       |
| <b>Communications and connectivity (max. <sup>e,x</sup>)</b> |                                  |  |                          |
| 2738/2962 - 2/4-port Multiprotocol PCI                       | 95                               | 148  | 19                       |
| 2943 - 8-port Asynchronous – EIA-232 / RS-422                | 42                               | 42   | 8                        |
| 2944 - 128-port Asynchronous Controller                      | 42                               | 42   | 20                       |
| 4959 – Token-Ring 4/16 Mbps                                  | 20                               | 20   | 23                       |
| 4961 - 4-port 10/100 Mbps Ethernet                           | 95                               | 140  | 13                       |
| 4962 - 10/100 Mbps Ethernet PCI II                           | 95                               | 163  | 23                       |
| 5701 - 10/100/1000 Mbps Base-TX Ethernet                     | 95                               | 163  | 12                       |
| 5706 - 2-port 10/100/1000 Mbps Base-TX                       | 95                               | 163  | 12                       |
| 5700 - Gigabit Ethernet-SX PCI-X (Fibre)                     | 95                               | 163  | 12                       |
| 5707 - 2-port Gigabit Ethernet-SX PCI-X (Fibre)              | 95                               | 163  | 12                       |
| 5718 10 Gigabit Ethernet - PCI-X                             | 32                               | 32   | 2                        |
| 8398- SP Switch2 System Attachment                           | -                                | -  | 2                        |
| pSeries High Performance Switch Network                      | -                                | -  | 1                        |
| 2751 - ESCON Channel PCI <sup>k</sup>                        | -                                | -  | 4                        |
| 2732 - HiPPI <sup>k</sup>                                    | -                                | -  | 4                        |
| 6312 - Quad Digital Trunk Telephony PCI <sup>k</sup>         | 80                               | 80   | -                        |
| 4960 - e-business Cryptographic Accelerator                  | 32                               | 32   | 9                        |
| 4963 - PCI Cryptographic Coprocessor (FIPS-4)                | 95                               | 140  | 11                       |
| <b>Display adapter (maximum <sup>e,x</sup>)</b>              | GXT135P (8)                      | GXT135P (8)                                      | GXT135P (3)              |
| <b>Benchmarks (AIX 5L)</b>                                   | (2, 4, 8-way)                    | (2, 4, 8, 12, 16-way)                            | (4, 8-way)               |
| SPECweb99  | -                                | -  | 10,291 (4-way)           |
| SPECint_base2000   | -                                | 1,398 <sup>y,*</sup>                             | 1,064                    |
| SPECfp_base2000  | -                                | 2,576 <sup>y</sup>                               | 1,642                    |
| SPECint_rate_base2000  | -                                | -, 74.4, 141, -, 273 <sup>y</sup>                | 47.7, 83.5               |
| SPECfp_rate_base2000   | -                                | -, 125, 241, -, 438 <sup>y</sup>                 | 66.5, 103                |
| SPECjbb2000  | -                                | 633,106 <sup>y</sup> (16-way)                    | 96,377 (4-way)           |
| TPC-C: tpmC; \$/tpmC   | -                                | 371,044.22, \$5.26 <sup>y</sup> (8-way)          | -                        |
| TPC-C: tpmC; \$/tpmC   | -                                | 809,144.09, \$4.95 <sup>y</sup> (16-way)         | -                        |
| 1TB TPC-H: QphH; \$/QphH                                     | -                                | -  | 20,221, \$69 (4-way)     |
| rPerf  | 11.16, 22.26, 42.14 <sup>o</sup> | 11.16, 22.26, 42.14, 60.50, 77.45 <sup>y,o</sup> | 15.22, 21.87             |

| Product line   | IBM @server pSeries 670     | IBM @server pSeries 690   |
|--|-----------------------------|---|
| Machine type   | 7040-671                    | 7040-681  |
| System packaging   | 24" system frame            | 24" system frame (+ I/O frame)  |
| <b>Microprocessor type</b>                                       | 64-bit POWER4+              | 64-bit POWER4+  |
| # of processors/system   | 4, 8 or 16                  | 8, 16, 24 or 32   |
| Clock rates available  | 1.5 GHz                     | 1.5 GHz, 1.7 GHz, 1.9 GHz   |
| <b>System memory (standard - maximum)</b>                        | 8GB - 256GB <sup>a, m</sup> | 8GB - 1024GB <sup>a, q</sup>  |
| Data - instruction (L1) cache                                    | 32KB - 64KB <sup>b</sup>    | 32KB - 64KB <sup>b</sup>  |
| Level 2 (L2) cache   | 6.0MB <sup>g</sup>          | 6.0 MB <sup>g</sup>   |
| Level 3 (L3) cache   | 128MB <sup>g</sup>          | 128MB <sup>g</sup>  |
| <b>Reliability, availability, serviceability</b>                 |                             |   |
| Chipkill memory  | X                           | X   |
| Service processor  | X                           | X   |
| Hot-swappable disks (internal and external)                      | X                           | X   |
| Dynamic Processor Deallocation                                   | X                           | X   |
| Dynamic deallocation: PCI bus slots                              | X                           | X   |
| Hot-plug slots   | X                           | X   |
| Blind-swap slots   | -                           | -   |
| Redundant hot-plug power   | X                           | X   |
| Redundant hot-plug cooling                                       | X                           | X   |
| NEBS3  | -                           | -   |
| <b>Capacity</b>  |                             |   |
| Capacity on Demand (CoD) features                                | P, M, B, OOP                | P, M, B, OOP  |
| Maximum logical partitions/Micro-Partitions                      | 16                          | 32  |
| Advanced POWER Virtualization                                    | -                           | -   |
| Maximum available PCI slots                                      | 60 (64-bit) <sup>t, e</sup> | 160 (64-bit) <sup>e</sup>   |
| Maximum PCI bus speed (MHz)                                      | 133                         | 133   |
| Disk   media bays  | 48 <sup>e</sup>   5         | 128 <sup>e</sup>   5  |
| Minimum   maximum internal disk storage <sup>e</sup>             | 72.8GB   7.0TB              | 72.8GB   18.7TB   |
| Required   optional I/O drawers                                  | 1   2                       | 1   7   |
| <b>Storage interfaces (maximum <sup>e, x</sup>)</b>              |                             |   |
| 6204 Ultra SCSI Differential - PCI                               | 20                          | 20  |
| 6203 2-channel Ultra3 SCSI - PCI                                 | 30                          | 30  |
| 5710/5712 2-channel Ultra320 SCSI - PCI-X                        | 30                          | 40  |
| 5703/5711 2-channel Ultra320 RAID - PCI-X                        | 30                          | 40  |
| 6230 SSA Advanced SerialRAID Plus                                | 30                          | 64  |
| 6239/5716 2 Gigabit Fibre Channel - PCI-X                        | 50                          | 140   |
| <b>Communications and connectivity (maximum <sup>e, x</sup>)</b> |                             |   |
| 2738/2962 - 2/4-port Multiprotocol PCI                           | 16                          | 16  |
| 2943 - 8-port Asynchronous - EIA-232 / RS-422                    | 16                          | 16  |
| 2944 - 128-port Asynchronous Controller                          | 32                          | 32  |
| 4959 - Token-Ring 4/16 Mbps                                      | 40                          | 40  |
| 4961 - 4-port 10/100 Mbps Ethernet                               | 40                          | 40  |
| 4962 - 10/100 Mbps Ethernet PCI II                               | 60                          | 140   |
| 5701 - 10/100/1000 Mbps Base-TX Ethernet PCI-X                   | 60                          | 140   |
| 5706 - 2-port 10/100/1000 Mbps Base-TX Ethernet                  | 40                          | 80  |
| 5700 - Gigabit Ethernet-SX PCI-X (Fibre)                         | 60                          | 140   |
| 5707 - 2-port Gigabit Ethernet-SX PCI-X (Fibre)                  | 40                          | 80  |
| 5718 10 Gigabit Ethernet - PCI-X                                 | 3                           | 8   |
| 8398 - SP Switch2 System Attachment                              | 8                           | 32  |
| pSeries High Performance Switch Network Interface                | -                           | 2   |
| 2751 - ESCON Channel PCI <sup>k</sup>                            | 8                           | 8   |
| 2732 - HiPPI <sup>k</sup>  | 8                           | 8   |
| 6312 - Quad Digital Trunk Telephony PCI <sup>k</sup>             | -                           | -   |
| 4960 - e-business Cryptographic Accelerator                      | 24                          | 32  |
| 4963 - PCI Cryptographic Coprocessor (FIPS-4)                    | 24                          | 32  |
| <b>Display adapter (maximum <sup>e, x</sup>)</b>                 | GXT135P (8)                 | GXT135P (8)   |
| <b>Benchmarks (AIX 5L)</b>                                       | (4, 8, 16-way)              | (8, 16, 24, 32-way)   |
| SPECweb99  | -                           | -   |
| SPECint_base2000   | 950                         | 1,077 <sup>z</sup>  |
| SPECfp_base2000  | 1,432                       | 1,598 <sup>z</sup>  |
| SPECint_rate_base2000  | -, -, 149                   | -, -, -, 322 <sup>z</sup>   |
| SPECfp_rate_base2000   | -, -, 181                   | -, -, -, 358 <sup>z</sup>   |
| SPECjbb2000  | -                           | 553,480 (32-way) <sup>z</sup>   |
| TPC-C: tpmC; \$/tpmC   | -                           | 1,025,486; \$5.43 <sup>y</sup>  |
| 1TB TPC-H: QphH; \$/QphH   | -                           | 62,214, \$243 <sup>w</sup> / -  |
| rPerf  | 13.66, 24.18, 46.79         | 27.11, 52.45, 72.86, 92.19 <sup>z</sup> /<br>30.63, 59.26, 82.32, 104.17 <sup>y</sup> |

## Footnotes

X = Standard; Supported

O = Optionally Available; Supported

- = Not Applicable

P = Processor Capacity Upgrade on Demand option

B = Capacity BackUp offering

M = Memory Capacity Upgrade on Demand option

OOP = On/Off Capacity on Demand for Processors option

OOM = On/Off Capacity on Demand for Memory option

R = Reserve Capacity on Demand option

SOD = Statement of General Direction announced

|    |   |
|----|---|
| a  | Shared memory   |
| b  | Per processor   |
| c  | Maximum memory using 4GB DDR2 DIMMs is 64GB   |
| d  | Supported on DDR1 memory only   |
| e  | Using maximum number of I/O drawers   |
| f  | Optional on 1.2 GHz systems   |
| g  | Per processor card, processor book or Multichip Module  |
| h  | Supported via 7311-D10 I/O Drawer   |
| j  | 16GB maximum on 1-way system  |
| k  | Requires additional software; check on availability   |
| m  | 4GB/128GB for 4- and 8-way systems  |
| n  | 1.45 GHz available as 2-way system only   |
| o  | rPerf values using AIX 5L V5.2 can be obtained by dividing by 1.3 and rounding down to nearest hundredth  |
| p  | Not including adapters installable on optional I/O drawers  |
| q  | Maximum memory on 8-way, 16-way and 24-way is 256GB, 512GB and 768GB respectively   |
| r  | Using 1.45 GHz processors   |
| t  | Reduced by 1/3 on 4-way and 8-way systems only  |
| u  | Supported on 1-way and 2-way systems only   |
| v  | Using 1.2 GHz processors  |
| w  | Using 1.3 GHz POWER4™ processors  |
| x  | More details on interface and adapter dependencies and their effect on these maximums can be found in the IBM Sales Manual or the pSeries PCI Adapter Placement manual available at:<br><a href="http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base/HW_pci_adp_pl.htm">http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base/HW_pci_adp_pl.htm</a> |
| y  | Using 1.9 GHz processors  |
| z  | Using 1.7 GHz processors  |
| bb | Two 7311-D10 I/O drawers or one 7311-D20 I/O drawer per 4U of rack space  |
| cc | Redundancy at the system frame level  |
| ee | First rPerf value - using one 2-way processor card; second rPerf value – using two 1-way processor cards  |
| gg | 1-way systems have no L3 cache  |

## Changes from last version (g3209878-76) of this document:

1. Added p5-520 and p5-550 1.5 GHz Express configurations to p5-520, p5-550 specifications
2. Changes names of FASTt Storage Servers to DS4000 Storage Servers
3. Corrected errors from previous version

## System Unit Details

| Server                               | pSeries 615        | p5-520; p5-520 Express | pSeries 630        | p5-550; p5-550 Express | pSeries 650 | p5-570 Express  | p5-570          | pSeries 655 | pSeries 670     | pSeries 690     |
|--------------------------------------|--------------------|------------------------|--------------------|------------------------|-------------|-----------------|-----------------|-------------|-----------------|-----------------|
| Standard internal disk bays          | 4                  | 4                      | 4                  | 4                      | 4           | 12 <sup>3</sup> | 24 <sup>3</sup> | 2           | 16 <sup>1</sup> | 16 <sup>1</sup> |
| Optional internal disk bays          | 4                  | 4                      | -                  | 4                      | -           | -               | -               | -           | -               | -               |
| Optional I/O drawer disk bays        | -                  | 48                     | 24                 | 96                     | 96          | 144             | 240             | 16          | 32              | 112             |
| Available media bays                 | 3                  | 3                      | 2                  | 3                      | 1           | 4 <sup>3</sup>  | 8 <sup>3</sup>  | -           | 3               | 3               |
| - Standard size                      | 1                  | 1                      | 2                  | 1                      | 1           | -               | -               | -           | 3               | 3               |
| - Slimline size                      | 2                  | 2                      | -                  | 2                      | -           | 4 <sup>3</sup>  | 8 <sup>3</sup>  | -           | -               | -               |
| Standard diskette drive              | -                  | -                      | -                  | -                      | X           | -               | -               | -           | X               | X               |
| Standard DVD-ROM                     | -                  | -                      | -                  | -                      | X           | X               | X               | -           | X               | X               |
| Integrated RS232 serial ports        | 3                  | -                      | 3                  | -                      | 4           | -               | -               | -           | 2               | 2               |
| Integrated USB ports                 | -                  | 2                      | -                  | 2                      | -           | 4 <sup>3</sup>  | 8 <sup>3</sup>  | -           | -               | -               |
| Keyboard port                        | X                  | X                      | X                  | X                      | X           | X               | X               | -           | X               | X               |
| Mouse port                           | X                  | X                      | X                  | X                      | X           | X               | X               | -           | X               | X               |
| Parallel port                        | X                  | X                      | X                  | X                      | -           | -               | -               | -           | -               | -               |
| HMC ports                            | 2                  | 2                      | 2                  | 2                      | 2           | 2               | 2               | 2           | 2               | 2               |
| Integrated 10/100 Ethernet port      | 1                  | -                      | 2                  | -                      | 1           | -               | -               | 2           | -               | -               |
| Integrated 10/100/1000 Ethernet port | 1                  | 2                      | -                  | 2                      | -           | 4 <sup>3</sup>  | 8 <sup>3</sup>  | -           | -               | -               |
| Integrated SCSI port/controller      | X                  | X                      | X                  | X                      | X           | X               | X               | X           | X               | X               |
| - Maximum SCSI speed (Mbps)          | 320                | 320                    | 160                | 320                    | 160         | 320             | 320             | 320         | 160             | 160             |
| PCI slots                            | -                  | -                      | -                  | -                      | -           | -               | -               | -           | 20 <sup>1</sup> | 20 <sup>1</sup> |
| - Long 64-bit 5v 33 MHz              |                    |                        |                    |                        |             |                 |                 |             | 6               | 6               |
| - Long 64-bit 3.3v 50/66 MHz         |                    |                        |                    |                        |             |                 |                 |             | 14              | 14              |
| PCI-X slots <sup>4</sup>             | 6                  | 6                      | 6                  | 5                      | 7           | 12 <sup>3</sup> | 24 <sup>3</sup> | 3           | 20 <sup>1</sup> | 20 <sup>1</sup> |
| - Long 64-bit 3.3v 133 MHz           | 4                  | 4                      | 6                  | 4                      | 6           | 10 <sup>3</sup> | 20 <sup>3</sup> | 3           | 20              | 20              |
| - Short 64-bit 3.3v 133 MHz          | -                  | -                      | -                  | 1                      | 1           | 2 <sup>3</sup>  | 4 <sup>3</sup>  | -           | -               | -               |
| - Short 32-bit 3.3v 66 MHz           | 2                  | 2                      | -                  | -                      | -           | -               | -               | -           | -               | -               |
| RJ-4x connector                      | RJ-48 <sup>2</sup> | RJ-45                  | RJ-48 <sup>2</sup> | RJ-45                  | -           | RJ-45           | RJ-45           | -           | -               | -               |
| Rack light indicator                 | X <sup>2</sup>     | X                      | X <sup>2</sup>     | X                      | X           | X               | X               | -           | -               | -               |
| LED diagnostics                      | X                  | X                      | X                  | X                      | X           | X               | X               | X           | X               | X               |

X = Available; - = Not Available

<sup>1</sup> Assuming single required I/O drawer; either PCI or PCI-X slot drawer may be installed.

<sup>2</sup> Rack-mount models only

<sup>3</sup> Assuming maximum building-blocks installed

<sup>4</sup> Assuming optional I/O drawers are not installed

| Peak bandwidth                  | pSeries 615 | p5-520 Express; p5-520 | pSeries 630 | p5-550 Express; p5-550 | pSeries 650 | p5-570 Express | p5-570  | pSeries 655 | pSeries 670 | pSeries 690 |
|---------------------------------|-------------|------------------------|-------------|------------------------|-------------|----------------|---------|-------------|-------------|-------------|
| Memory to L3 cache (GB/second)  | 6.4         | N/A                    | 12.8        | N/A                    | 25.6        | N/A            | N/A     | 51.2        | 102.4       | 204.8       |
| Memory to processor (GB/second) | N/A         | 10.3                   | N/A         | 20.6                   | N/A         | 49.8           | 199.8 * | N/A         | N/A         | N/A         |
| L2 to L3 cache (GB/second)      | N/A         | 24.0;26.4              | N/A         | 48.0;52.8              | N/A         | 96.0           | 243.2   | N/A         | N/A         | N/A         |
| RIO-2 I/O subsystem (GB/second) | 2           | 4.4                    | 4           | 8.8                    | 16          | 16             | 36.4    | 4           | 14          | 44          |

N/A = Not Applicable

\* Using 533 MHz DDR2 memory

## Server I/O Attachment

| Server  | Maximum Drawers per System | Slots per Drawer                        | Maximum Slots per System | Disk Bays per Drawer | Maximum Disk Bays per System | Maximum I/O Drawer Disk Capacity | Maximum Disk Capacity per System |
|---|----------------------------|---|--------------------------|----------------------|------------------------------|----------------------------------|----------------------------------|
| @server p5 520 Express<br>7311-D20 drawer <sup>4</sup>  | 4                          | 7 PCI-X                                 | 34                       | 12                   | 56                           | 7.0TB                            | 8.2TB                            |
| @server p5 520<br>7311-D20 drawer <sup>4</sup>  | 4                          | 7 PCI-X                                 | 34                       | 12                   | 56                           | 7.0TB                            | 8.2TB                            |
| pSeries 630 Model 6C4<br>7311-D20 drawer <sup>4</sup>   | 2                          | 7 PCI-X                                 | 20                       | 12                   | 28                           | 3.5TB                            | 4.1TB                            |
| @server p5 550 Express<br>7311-D20 drawer <sup>4</sup>  | 8 <sup>7</sup>             | 7 PCI-X                                 | 60                       | 12                   | 104                          | 14.0TB                           | 15.2TB                           |
| @server p5 550<br>7311-D20 drawer <sup>4</sup>  | 8 <sup>7</sup>             | 7 PCI-X                                 | 60                       | 12                   | 104                          | 14.0TB                           | 15.2TB                           |
| pSeries 650<br>7311-D10 drawer<br>7311-D20 drawer <sup>4</sup>  | 8 <sup>2</sup>             | 1 PCI,<br>5 PCI-X<br>7 PCI-X            | 63                       | 12                   | 100                          | 14.0TB                           | 14.6TB                           |
| @server p5 570 Express<br>7311-D10 drawer <sup>6</sup><br>7311-D11 drawer<br>7311-D20 drawer <sup>4</sup> | 12 <sup>2,3,7</sup>        | 1 PCI,<br>5 PCI-X<br>6 PCI-X<br>7 PCI-X | 95                       | 12                   | 156                          | 21.1TB                           | 22.9TB                           |
| @server p5 570<br>7311-D10 drawer <sup>6</sup><br>7311-D11 drawer<br>7311-D20 drawer <sup>4</sup>         | 20 <sup>7</sup>            | 1 PCI,<br>5 PCI-X<br>6 PCI-X<br>7 PCI-X | 163                      | 12                   | 264                          | 35.2TB                           | 38.7TB                           |
| pSeries 655<br>7040-61D drawer <sup>5</sup>   | 1                          | 20 PCI or<br>20 PCI-X                   | 23                       | 16                   | 18                           | 2.3TB                            | 2.6TB                            |
| pSeries 670 <sup>1</sup><br>7040-61D drawer <sup>5</sup>  | 3 <sup>3</sup>             | 20 PCI or<br>20 PCI-X                   | 60                       | 16                   | 48                           | 7.0TB                            | 7.0TB                            |
| pSeries 690 <sup>1</sup><br>7040-61D drawer <sup>5</sup>  | 8 <sup>3</sup>             | 20 PCI or<br>20 PCI-X                   | 160                      | 16                   | 128                          | 18.7TB                           | 18.7TB                           |

<sup>1</sup> At least one drawer is required

<sup>2</sup> Maximum drawers of any type

<sup>3</sup> Reduced on less than maximum-way systems

<sup>4</sup> Ultra320 disk drives enabled

<sup>5</sup> Ultra320 SCSI adapter provides access to external Ultra320 disk drives

<sup>6</sup> Supported if migrated from another system, but not orderable as new

<sup>7</sup> Maximum optional I/O drawers require use of one PCI-X slot

## Physical Planning Characteristics

| Server                     | pSeries 615-6C3                    |          | pSeries 615-6E3                    |       | p5-520 Express p5-520              |          | p5-520 Express p5-520              |       | pSeries 630-6C4                    |          | pSeries 630-6E4                    |       |
|----------------------------|------------------------------------|----------|------------------------------------|-------|------------------------------------|----------|------------------------------------|-------|------------------------------------|----------|------------------------------------|-------|
|                            | Min.                               | Max.     | Min.                               | Max.  | Min.                               | Max.     | Min.                               | Max.  | Min.                               | Max.     | Min.                               | Max.  |
| Number of Processors       | 1-way                              | 2-way    | 1-way                              | 2-way | 1-way *                            | 2-way    | 1-way *                            | 2-way | 1-way                              | 4-way    | 1-way                              | 4-way |
| Packaging                  | Rack drawer                        |          | Deskside                           |       | Rack drawer                        |          | Deskside                           |       | Rack drawer                        |          | Deskside                           |       |
| KVA                        | 0.3                                | 0.5      | 0.3                                | 0.5   | 0.632                              |          | 0.632                              |       | 0.348                              | 0.783    | 0.348                              | 0.783 |
| Watts                      | 300                                | 450      | 300                                | 450   | 600                                |          | 600                                |       | 330                                | 750      | 330                                | 750   |
| BTU/hour                   | 1024                               | 1536     | 1024                               | 1536  | 2046                               |          | 2046                               |       | 1129                               | 2540     | 1129                               | 2540  |
| Noise (bels)               | 6.0                                |          | 6.0                                |       | 6.0                                | 6.1      | 6.1                                | 6.2   | 6.0                                | 6.1      | 5.9                                | 6.0   |
| Voltage                    | 100 – 127,<br>200 – 240<br>1-phase |          | 100 – 127,<br>200 – 240<br>1-phase |       | 100 – 127,<br>200 – 240<br>1-phase |          | 100 – 127,<br>200 – 240<br>1-phase |       | 100 – 127,<br>200 – 240<br>1-phase |          | 100 – 127,<br>200 – 240<br>1-phase |       |
| Power Supply               | N+1<br>Optional                    |          | N+1<br>Optional                    |       | N+1<br>Optional                    |          | N+1<br>Optional                    |       | N+1<br>Optional                    |          | N+1<br>Optional                    |       |
| Height                     | inches                             | 4U – 7.0 | inches                             | 21.0  | inches                             | 4U – 7.0 | inches                             | 21.0  | inches                             | 4U – 6.8 | inches                             | 20.9  |
|                            | millimeters                        | 178      | millimeters                        | 533   | millimeters                        | 178      | millimeters                        | 533   | millimeters                        | 172.8    | millimeters                        | 530   |
| Width                      | inches                             | 17.2     | inches                             | 7.9   | inches                             | 17.2     | inches                             | 7.9   | inches                             | 17.5     | inches                             | 11.8  |
|                            | millimeters                        | 437      | millimeters                        | 201   | millimeters                        | 437      | millimeters                        | 201   | millimeters                        | 444      | millimeters                        | 300   |
| Depth                      | inches                             | 20.0     | inches                             | 20.0  | inches                             | 20.0     | inches                             | 23.0  | inches                             | 24.0     | inches                             | 28.5  |
|                            | millimeters                        | 508      | millimeters                        | 508   | millimeters                        | 508      | millimeters                        | 584   | millimeters                        | 609.6    | millimeters                        | 725   |
| Operating Temperature (°C) | 10 – 40                            |          | 10 – 40                            |       | 5 – 35                             |          | 5 – 35                             |       | 5 – 35                             |          | 5 – 35                             |       |
| Operating Humidity         | 8% – 80%                           |          | 8% – 80%                           |       | 8% – 80%                           |          | 8% – 80%                           |       | 8% – 80%                           |          | 8% – 80%                           |       |
| Max. Altitude              | feet                               | 7000     | feet                               | 7000  | feet                               | 10000    | feet                               | 10000 | feet                               | 7000     | feet                               | 7000  |
|                            | meters                             | 2135     | meters                             | 2135  | meters                             | 3048     | meters                             | 3048  | meters                             | 2135     | meters                             | 2135  |
| Weight                     | pounds                             | 78.0     | pounds                             | 94.8  | pounds                             | 78.0     | pounds                             | 95.0  | pounds                             | 70.4     | pounds                             | 104.8 |
|                            | kilograms                          | 35.5     | kilograms                          | 43.1  | kilograms                          | 35.5     | kilograms                          | 43.0  | kilograms                          | 32       | kilograms                          | 47.3  |

\* 1-way only available on p5-520 Express

Note: The physical planning characteristics of pSeries servers are estimates and are intended for planning purposes only. More comprehensive information may be found in the IBM RS/6000®, IBM @server pSeries and IBM @server p5 Site and Hardware Planning manual (SA38-0505-21) available at: [http://publib16.boulder.ibm.com/pseries/en\\_US/infocenter/base/hardware\\_docs/pdf/380508.pdf](http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base/hardware_docs/pdf/380508.pdf).

## Physical Planning Characteristics

| Server                     | pSeries 650          |       | p5-550 Express p5-550              |       | p5-550 Express p5-550              |       | pSeries 655                                |       | p5-570 Express p5-570 |           |
|----------------------------|----------------------|-------|------------------------------------|-------|------------------------------------|-------|--|-------|-----------------------|-----------|
|                            | Min.                 | Max.  | Min.                               | Max.  | Min.                               | Max.  | Min.                                       | Max.  | Min.                  | Max.      |
| Number of Processors       | 2-way                | 8-way | 1-way *                            | 4-way | 1-way *                            | 4-way | 4-way                                      | 8-way | 2-way                 | 16-way ** |
| Packaging                  | Rack drawer          |       | Rack drawer                        |       | Deskside                           |       | Frame with I/O drawer                      |       | Rack drawer           |           |
| KVA                        | 1.126                | 1.684 | 0.789                              |       | 0.789                              |       | 33.5                                       |       | -                     | 1.474     |
| Watts                      | 1070                 | 1600  | 750                                |       | 750                                |       | 31818                                      |       | -                     | 1400      |
| BTU/hour                   | 3652                 | 5461  | 2557                               |       | 2557                               |       | 102000                                     |       | -                     | 4774      |
| Noise (bels)               | 6.1                  | 6.2   | 6.0                                |       | 6.6                                | 6.8   | 6.2  | 8.7   | 6.0                   |           |
| Voltage                    | 200 – 240<br>1-phase |       | 100 – 127,<br>200 – 240<br>1-phase |       | 100 – 127,<br>200 – 240<br>1-phase |       | 200 – 240,<br>380 – 415,<br>480<br>3-phase |       | 200 – 240<br>1-phase  |           |
| Power Supply               | N+1<br>Standard      |       | N+1<br>Optional                    |       | N+1<br>Optional                    |       | N+1 Standard;<br>IBB Optional              |       | N+1<br>Standard       |           |
| Height inches              | 8U – 13.8            |       | 4U – 7.0                           |       | 21.0                               |       | 42U – 79.84                                |       | 4U – 6.85             |           |
| Height millimeters         | 351                  |       | 178                                |       | 533                                |       | 2028                                       |       | 174.1                 |           |
| Width inches               | 17.5                 |       | 17.2                               |       | 7.9                                |       | 30.91                                      |       | 19.0                  |           |
| Width millimeters          | 445                  |       | 437                                |       | 201                                |       | 7.85                                       |       | 483                   |           |
| Depth inches               | 29.9                 |       | 28.8                               |       | 30.7                               |       | 56.81 – 70.83                              |       | 31.1                  |           |
| Depth millimeters          | 760                  |       | 731                                |       | 779                                |       | 1443 – 1799                                |       | 790                   |           |
| Operating Temperature (°C) | 10 – 38              |       | 5 – 35                             |       | 5 – 35                             |       | 10 – 32                                    |       | 5 – 35                |           |
| Operating Humidity         | 8% – 80%             |       | 8% – 80%                           |       | 8% – 80%                           |       | 8% – 80%                                   |       | 8% – 80%              |           |
| Max. Altitude feet         | 10000                |       | 10000                              |       | 10000                              |       | 10000                                      |       | 10000                 |           |
| Max. Altitude meters       | 3048                 |       | 3048                               |       | 3048                               |       | 3048                                       |       | 3048                  |           |
| Weight pounds              | -                    | 205   | 91                                 | 125   | 91                                 | 125   | -  | 3612  | -                     | 140       |
| Weight kilograms           | -                    | 93    | 41.4                               | 57    | 41.4                               | 57    | -  | 1638  | -                     | 63.6      |

\* 2-way is minimum on p5-550

\*\* 8-way is maximum on p5-570 Express

Note: The physical planning characteristics of pSeries servers are estimates and are intended for planning purposes only. More comprehensive information may be found in the IBM RS/6000, IBM @server pSeries and IBM @server p5 Site and Hardware Planning manual (SA38-0505-21) available at: [http://publib16.boulder.ibm.com/pseries/en\\_US/infocenter/base/hardware\\_docs/pdf/380508.pdf](http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base/hardware_docs/pdf/380508.pdf).

## Physical Planning Characteristics (Continued)

| Servers and I/O drawers    | pSeries 670   |               | pSeries 690                                |               | 7311-D10        |          | 7311-D11        |          | 7311-D20                |          |
|----------------------------|---|---------------|--|---------------|-----------------|----------|-----------------|----------|-------------------------|----------|
|                            | Min.  | Max.          | Min.                                       | Max.          | Min.            | Max.     | Min.            | Max.     | Min.                    | Max.     |
| Number of Processors       | 4-way   | 16-way        | 8-way                                      | 32-way        | -               |          | -               |          | -                       |          |
| Packaging                  | Frame with I/O drawers  |               | Frame(s) with I/O drawers                  |               | Rack drawer     |          | Rack drawer     |          | Rack drawer             |          |
| KVA                        | 1.9   | 8.1           | 2.0  | 18.3          | 0.142           | 0.21     | 0.142           | 0.21     | 0.239                   | 0.358    |
| Watts                      | 1714  | 17130         | 1714                                       | 17130         | 135             | 200      | 135             | 200      | 227                     | 340      |
| BTU/hour                   | 6263  | 26900         | 6522                                       | 58200         | 461             | 683      | 461             | 683      | 774                     | 1161     |
| Voltage                    | 200 – 240,<br>380 – 415<br>1-phase,<br>3-phase<br>480 3-phase |               | 200 – 240,<br>380 – 415,<br>480<br>3-phase |               | 200 – 240       |          | 200 – 240       |          | 100 – 127,<br>200 – 240 |          |
| Noise (bels)               | 7.5   | 7.9           | 7.5  | 7.9           | 5.6             |          | 5.6             |          | 6.0                     | 6.1      |
| Power Supply               | N+1 Standard;<br>IBB Optional                                 |               | N+1 Standard;<br>IBB Optional              |               | N+1<br>Standard |          | N+1<br>Standard |          | N+1<br>Optional         |          |
| Height                     | inches  | 42U – 79.72   | inches                                     | 42U – 79.72   | inches          | 4U – 6.6 | inches          | 4U – 6.9 | inches                  | 4U – 7.0 |
|                            | millimeters   | 2025          | millimeters                                | 2025          | millimeters     | 170      | millimeters     | 175      | millimeters             | 178      |
| Width                      | inches  | 30.91         | inches                                     | 62.0          | inches          | 8.7      | inches          | 17.5     | inches                  | 17.5     |
|                            | millimeters   | 785           | millimeters                                | 1575          | millimeters     | 220      | millimeters     | 445      | millimeters             | 445      |
| Depth                      | inches  | 52.83 – 58.83 | inches                                     | 52.83 – 58.83 | inches          | 28.0     | inches          | 28.0     | inches                  | 24.0     |
|                            | millimeters   | 1342 – 1494   | millimeters                                | 1342 – 1494   | millimeters     | 711      | millimeters     | 711      | millimeters             | 610      |
| Operating Temperature (°C) | 10 – 32   |               | 10 – 32                                    |               | 10 – 38         |          | 10 – 38         |          | 5 – 35                  |          |
| Operating Humidity         | 8% – 80%  |               | 8% – 80%                                   |               | 8% – 80%        |          | 8% – 80%        |          | 8% – 80%                |          |
| Max. Altitude              | feet  | 10000         | feet                                       | 10000         | feet            | 10000    | feet            | 10000    | feet                    | 10000    |
|                            | meters  | 3048          | meters                                     | 3048          | meters          | 3048     | meters          | 3048     | meters                  | 3048     |
| Weight                     | pounds  | 1807          | pounds                                     | 4409          | pounds          | 37       | pounds          | 37       | pounds                  | 101      |
|                            | kilograms   | 820           | kilograms                                  | 2000          | kilograms       | 16.8     | kilograms       | 16.8     | kilograms               | 45.9     |

| Racks       | 7014-T00    | 7014-T42    | 7040-61R      |
|-------------|-------------|-------------|---------------|
| Height      | 36U         | 42U         | 42U           |
| inches      | 71.0 – 75.8 | 79.3        | 79.72         |
| millimeters | 1804 – 1926 | 2015        | 2025          |
| Width       | 24.5 – 25.4 | 24.5 – 25.4 | 30.91         |
| inches      | 623 – 644   | 623 – 644   | 785           |
| millimeters |             |             |               |
| Depth       | 41.0 – 45.2 | 41.0 – 45.2 | 52.83 – 58.83 |
| inches      | 1042 – 1098 | 1042 – 1098 | 1342 – 1494   |
| millimeters |             |             |               |
| Weight      | 535         | 575         | -             |
| pounds      | 244         | 261         |               |
| kilograms   |             |             |               |

Note: The physical planning characteristics of pSeries servers, I/O drawers and racks are estimates and are intended for planning purposes only. More comprehensive information may be found in the IBM RS/6000, IBM @server pSeries and IBM @server p5 Site and Hardware Planning manual (SA38-0505-21) available at: [http://publib16.boulder.ibm.com/pseries/en\\_US/infocenter/base/hardware\\_docs/pdf/380508.pdf](http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base/hardware_docs/pdf/380508.pdf).

| I/O device options                             | pSeries 615 | p5-520 Express p5-520 | pSeries 630    | p5-550 Express p5-550 | pSeries 650 | p5-570 Express p5-570 | pSeries 655 | pSeries 670    | pSeries 690    |
|--|-------------|-----------------------|----------------|-----------------------|-------------|-----------------------|-------------|----------------|----------------|
| <b>Disk drives and subsystems</b>              |             |                       |                |                       |             |                       |             |                |                |
| 7204 External Disk Drive                       | X           | X                     | X <sup>1</sup> | X                     | X           | X                     | X           | X <sup>1</sup> | X <sup>1</sup> |
| 7133 Serial Disk System                        | X           | X <sup>2</sup>        | X              | X <sup>2</sup>        | X           | X <sup>2</sup>        | X           | X              | X              |
| 2104 Expandable Storage Plus U320              | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 2105 Enterprise Storage Server®                | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 5198 NAS Gateway 500                           | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| DS4000 Series Disk Systems                     | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| <b>Fibre Channel directors, switches, hubs</b> |             |                       |                |                       |             |                       |             |                |                |
| 2031 McDATA Fibre Channel Switch               | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 2032 McDATA Fibre Channel Director             | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 2042 INRANGE FC/9000 Fibre Channel             | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 2062 Cisco Fabric Switch / Director            | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 3534 SAN Switch                                | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 2109 SAN Switch                                | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| <b>Optical drives and libraries</b>            |             |                       |                |                       |             |                       |             |                |                |
| 4.7 GB Auto-docking DVD-RAM Drive              | X           | X                     | X              | X                     | X           | X                     | -           | X              | X              |
| 7210-025/030 DVD-RAM Drive                     | X           | X                     | X              | X                     | X           | X                     | X           | -              | -              |
| #2634 - 16X/48X IDE DVD-ROM Drive              | X           | X                     | X              | X                     | -           | X                     | -           | -              | -              |
| <b>Tape drives and libraries</b>               |             |                       |                |                       |             |                       |             |                |                |
| 3494 Tape Library                              | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 3580 Tape Drive                                | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 3581 Tape Autoloader                           | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 3582 Tape Library                              | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 3583 Tape Library                              | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 3584 Tape Library                              | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 3590 Tape Drive                                | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 3592 Tape Drive                                | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 7205 External DLT Drive                        | X           | X                     | X <sup>1</sup> | X                     | X           | X                     | X           | X <sup>1</sup> | X <sup>1</sup> |
| 7206 4 mm Tape Drive                           | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 7207 4GB ¼-inch External Cartridge Tape        | X           | X                     | X              | X                     | X           | X                     | X           | X              | X              |
| 7208 External 8 mm Tape Drive                  | X           | X                     | X <sup>1</sup> | X                     | X           | X                     | X           | X <sup>1</sup> | X <sup>1</sup> |
| 7212 SLR60/SLR100 Tape Drives                  | X           | -                     | X              | -                     | X           | -                     | X           | X              | X              |
| 7332 4 mm DDS-3 Tape Autoloader                | X           | X                     | X <sup>1</sup> | X                     | X           | X                     | X           | X <sup>1</sup> | X <sup>1</sup> |
| #6158 - 20GB/40GB 4 mm Tape Drive              | X           | -                     | X              | -                     | X           | -                     | -           | X              | X              |
| #6134 - 60/150GB 8 mm Tape Drive (internal)    | X           | X                     | X              | X                     | X           | X                     | -           | -              | -              |
| #6120 - 80/160GB VXA Tape Drive (internal)     | X           | X                     | X              | X                     | X           | X                     | -           | X              | X              |
| #6256 - 36/72GB 4 mm DAT72 Tape Drive          | X           | X                     | X              | X                     | X           | -                     | -           | X              | X              |

X = Available; - = Not Available

<sup>1</sup> Not supported when a pSeries 630, pSeries 670 or pSeries 690 is attached to the RS/6000 SP

<sup>2</sup> Via optional 7311-D20 I/O drawer

Note: For the devices listed, not all models are supported on all systems. For more information, contact your IBM marketing representative or IBM Business Partner.

| Standard warranty <sup>3</sup>                             | pSeries 615 | p5-520 Express p5-520 | pSeries 630 | p5-550 Express p5-520 | pSeries 650 | p5-570 Express p5-570 | pSeries 655 | pSeries 670 | pSeries 690 |
|--|-------------|-----------------------|-------------|-----------------------|-------------|-----------------------|-------------|-------------|-------------|
| 24x7 with 2 hour service objective <sup>4</sup>            | -           | -                     | -           | -                     | -           | -                     | -           | X           | X           |
| 24x7 with 4 hour service objective                         | O           | O                     | O           | O                     | O           | O                     | O           | -           | -           |
| 9x5 next-business-day                                      | -           | -                     | X           | -                     | X           | -                     | X           | -           | -           |
| 9x5 next-business-day with CRU (Customer Replaceable Unit) | X           | X                     | -           | X                     | -           | X                     | -           | -           | -           |

X = Standard offering

O = Optional offering

<sup>3</sup> These warranty terms and conditions are for the United States and may be different in other countries. Consult your local IBM representative or IBM Business Partner for country-specific information.

<sup>4</sup> Available in selected cities

| System software   | pSeries<br>615 | p5-520<br>Express<br>p5-520 | pSeries<br>630 | 55-550<br>Express<br>p5-550 | pSeries<br>650 |
|---|----------------|-----------------------------|----------------|-----------------------------|----------------|
| <b><u>Operating system support</u></b>                                  |                |                             |                |                             |                |
| AIX 5L V5.1 (5765-E61)  | X              | -                           | X              | -                           | X              |
| AIX 5L V5.2 (5765-E61)  | X              | X                           | X              | X                           | X              |
| AIX 5L V5.3 (5765-G03)  | X              | X                           | X              | X                           | X              |
| AIX 5L LPAR   | -              | X                           | X              | X                           | X              |
| Red Hat Enterprise Linux® AS Update 3 for POWER (5639-RDH) <sup>1</sup> | X              | X                           | X              | X                           | X              |
| SUSE LINUX Enterprise Server 8 (5639-LNX) <sup>1</sup>                  | X              | -                           | X              | -                           | X              |
| SUSE LINUX Enterprise Server 9 for POWER (5639-SLP) <sup>1</sup>        | X              | X                           | X              | X                           | X              |
| Linux LPAR  | -              | X                           | X              | X                           | X              |
| i5/OS™  | -              | -                           | -              | -                           | -              |
| HACMP™ for AIX 5L V5.2 (5765-F62)                                       | X              | X                           | X              | X                           | X              |
| CSM for AIX 5L V1.4 (5765-F67)  | X              | X                           | X              | X                           | X              |
| CSM for Linux on POWER V1.4 (5765-G16)                                  | X              | X                           | X              | X                           | X              |

| System software   | p5-570<br>Express<br>p5-570 | pSeries<br>655 | pSeries<br>670 | pSeries<br>690 |
|---|-----------------------------|----------------|----------------|----------------|
| <b><u>Operating system support</u></b>                      |                             |                |                |                |
| AIX 5L V5.1   | -                           | X              | X              | X              |
| AIX 5L V5.2   | X                           | X              | X              | X              |
| AIX 5L V5.3   | X                           | X              | X              | X              |
| AIX 5L LPAR   | X                           | X              | X              | X              |
| Red Hat Enterprise Linux AS Update 3 for POWER <sup>1</sup> | X                           | X <sup>2</sup> | X              | X              |
| SUSE LINUX Enterprise Server 8 <sup>1</sup>                 | -                           | X <sup>2</sup> | X              | X              |
| SUSE LINUX Enterprise Server 9 for POWER <sup>1</sup>       | X                           | X <sup>2</sup> | X              | X              |
| Linux LPAR  | X                           | X <sup>2</sup> | X              | X              |
| i5/OS   | SOD                         | -              | -              | -              |
| HACMP for AIX 5L V5.2                                       | X                           | X              | X              | X              |
| CSM for AIX 5L V1.4   | X                           | X              | X              | X              |
| CSM for Linux on POWER V1.4                                 | X                           | X              | X              | X              |

X = Supported; - = Not Supported

SOD = Statement of General Direction announced

<sup>1</sup> Many of the features described in this document are operating system dependent and may not be available on Linux.

For more information, please check: [http://www.ibm.com/servers/eserver/pseries/linux/whitepapers/linux\\_pseries.html](http://www.ibm.com/servers/eserver/pseries/linux/whitepapers/linux_pseries.html).

<sup>2</sup> Support for Linux running in single system image mode (non-LPAR) requires a network-attached pSeries system with AIX 5L. Linux running in an LPAR on the p655 requires either AIX 5L in an LPAR on the p655 or a network-attached pSeries system with AIX 5L.

## IBM Services

IBM services provide the capabilities and solutions needed to manage virtually every aspect of an open systems environment and at any level chosen. They complement the support already included with IBM @server pSeries and p5 systems. IBM world-class services and support allow you to better manage resources and focus on what matters most – your business.

IBM client financing provides an additional incentive. An array of attractive and flexible financing programs eases the acquisition of new technology and helps protect from the risk of obsolescence. Financing may be available to credit-qualified clients. Rates are based on credit rating, financing terms, and other options. Other restrictions may apply.

## Project Support Services

- Operating system porting/conversion
- Operating system migration assistance
- Systems integration
- IBM and non-IBM software customization
- IBM application development
- Site planning services

## Continuing Support Services

- Client Support Center services
  - ✓ Electronic/voice
  - ✓ IBM and non-IBM hardware and software
- On-site software maintenance support
- Capacity planning
- Maintenance services, including multivendor environment
- Technical/application specialists
- Network custom services
- Education

## Benchmark Notes

The benchmark information contained herein is current as of the date of this document.

Values shown in the performance benchmarks section were derived using particular, well-configured, development-level computer systems, and used 32-bit applications and external cache if external cache is supported on the system. All performance benchmark values and estimates are provided "AS IS" and no warranties or guarantees are expressed or implied by IBM. Buyers should consult other sources of information, including system benchmarks, to evaluate the performance of a system they are considering. Actual system performance may vary and is dependent upon many factors including system hardware configuration and software design and configuration. IBM recommends application-oriented testing for performance predictions. Additional information about the performance benchmarks, values, and systems tested is available from your IBM marketing representative or IBM Authorized Reseller or access the following on the Web:

SPEC – <http://www.spec.org>

TPC – <http://www.tpc.org>

Unless otherwise indicated, new or upgraded systems were tested with AIX 5L. All TPC-C benchmark results are TPC-C Version 5.

tpmC: TPC Benchmark C throughput measured as the average number of transactions processed per minute during a valid TPC-C configuration run of at least 20 minutes.

\$/tpmC: TPC Benchmark C price-performance ratio reflects the estimated five year total cost of ownership for system hardware, software, and maintenance divided by the tpmC for the system.

QppH is the power metric of TPC-H and is based on a geometric mean of the 17 TPC-H queries, the insert test and the delete test. It measures the ability of the system to give a single user the best possible response time by harnessing all available resources. QppH is scaled based on database size from 30GB to 10TB.

QthH is the throughput metric of TPC-H and is a classical throughput measure characterizing the ability of the system to support a multiuser workload in a balanced way. A number of query users is chosen, each of which must execute the full set of 17 queries in a different order. In the background, there is an update stream that runs a series of insert/delete operations. QthH is scaled based on the database size from 30GB to 10TB.

QphH is the geometric mean of the power tests (QppH) and the throughput tests (QthH).

\$/QphH: Price-performance metric for the TPC-H benchmark where QphH is the geometric mean of QppH and QthH. The price reflects the estimated five year cost of ownership for the tested hardware configuration, software and maintenance.

rPerf (Relative Performance) is an estimate of commercial processing performance relative to other pSeries systems. It is derived from an IBM analytical model which uses characteristics from IBM internal workloads, TPC and SPEC benchmarks. The rPerf model is not intended to represent any specific public benchmark results and should not be reasonably used in that way. The model simulates some of the system operations such as CPU, cache and memory. However, the model does not simulate disk or network I/O operations.

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## More Information

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