



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 118

IBM System p 570 (4.7 GHz, 4 core, SLES)

SPECint_rate_base2006 = 105

CPU2006 license: 11

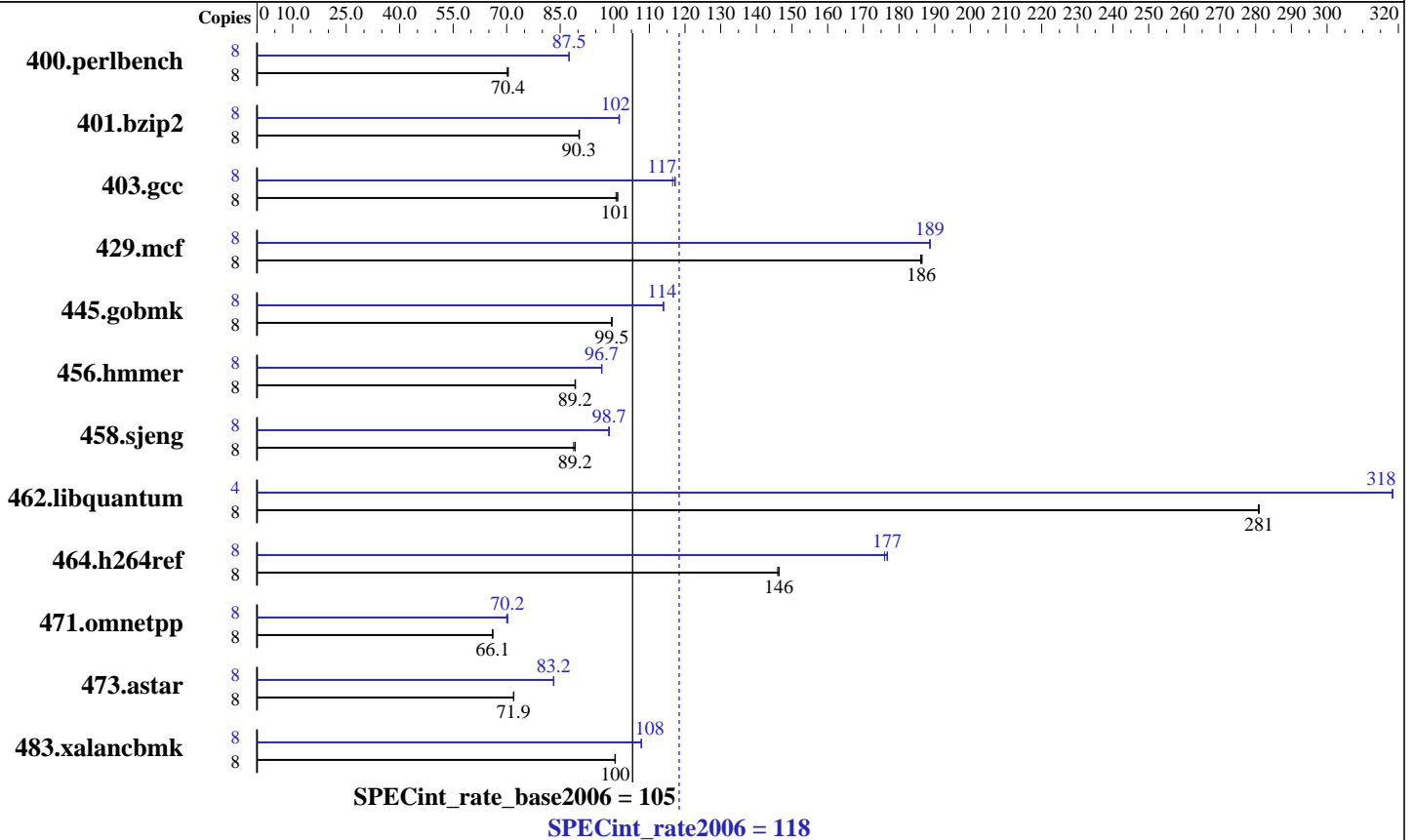
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2007

Hardware Availability: Jun-2007

Software Availability: Sep-2007



Hardware

CPU Name: POWER6
 CPU Characteristics:
 CPU MHz: 4700
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4,8,12,16 cores
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 4 MB I+D on chip per core
 L3 Cache: 32 MB I+D off chip per chip
 Other Cache: None
 Memory: 32 GB (16x2 GB) DDR2 667 MHz
 Disk Subsystem: 2x73 GB SAS 15K RPM
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise 10 SP1
 Compiler: IBM XL C/C++ Advanced Edition for Linux, V9.0
 Auto Parallel: No
 File System: ReiserFS
 System State: Multi-User
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: -Post-Link Optimization for Linux on POWER, Version 5.4.0
 -MicroQuill SmartHeap 7.3



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	1114	70.2	1110	70.4	1110	70.4	8	894	87.5	893	87.5	893	87.5
401.bzip2	8	855	90.3	855	90.3	854	90.4	8	761	101	760	102	760	102
403.gcc	8	637	101	640	101	637	101	8	553	117	549	117	550	117
429.mcf	8	392	186	391	186	392	186	8	387	189	387	189	387	189
445.gobmk	8	844	99.5	843	99.5	844	99.5	8	736	114	736	114	737	114
456.hammer	8	836	89.3	837	89.2	837	89.2	8	772	96.7	772	96.6	772	96.7
458.sjeng	8	1090	88.8	1085	89.2	1086	89.2	8	980	98.7	981	98.7	982	98.6
462.libquantum	8	590	281	590	281	590	281	4	260	318	260	318	260	318
464.h264ref	8	1213	146	1210	146	1210	146	8	1002	177	1002	177	1006	176
471.omnetpp	8	758	66.0	756	66.1	757	66.1	8	712	70.2	714	70.0	712	70.3
473.astar	8	780	72.0	781	71.9	781	71.9	8	676	83.1	675	83.2	675	83.2
483.xalancbmk	8	550	100	550	100	549	100	8	512	108	513	108	512	108

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

General Notes

kernel release 2.6.16.46-0.12-ppc64.

See flags file for details on following settings.

ulimit -s (stack) set to unlimited.

System set to Enhanced mode when defining partition on HMC

Large pages reserved as follows by root user:

```
echo 800 > /proc/sys/vm/nr_hugepages
```

System configured with libhugetlbfs library for application access to large pages

Environment variables set before executing benchmarks.

```
export HUGETLB_VERBOSE=0
```

```
export HUGETLB_MORECORE=yes
```

```
export HUGETLB_MORECORE_HEAPBASE=0x50000000
```

```
export XLFRTLOPTS=intrinthds=1
```

fdpr binary optimization tool used for

```
400.perlbench 401.bzip2 403.gcc 429.mcf 456.hammer 458.sjeng
```

```
462.libquantum 464.h264ref 473.astar 483.xalancbmk
```

Benchmarks bound to a processor using taskset on the submit command.



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Base Compiler Invocation

C benchmarks:

`xlc -qlanglvl=extc99`

C++ benchmarks:

`xlC`

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_PPC
462.libquantum: -DSPEC_CPU_LINUX
464.h264ref: -qchars=signed
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

`-O5 -qalias=noansi -qalloca -lhugetlbfs`

C++ benchmarks:

`-O5 -qrtti -lsmartheap`

Base Other Flags

C benchmarks:

`-qipa=noobject -qipa=threads`

C++ benchmarks:

`-qipa=noobject -qipa=threads`

Peak Compiler Invocation

C benchmarks:

`xlc -qlanglvl=extc99`

C++ benchmarks:

`xlC`



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Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_PPC
 403.gcc: -DSPEC_CPU_LP64
 462.libquantum: -DSPEC_CPU_LINUX
 464.h264ref: -qchars=signed
 483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qalias=noansi
 -lsmartheap

401.bzip2: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -lhugetlbfs

403.gcc: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qalloca -q64
 -lhugetlbfs

429.mcf: -Wl,-q -O5 -qnoenablevmx -lhugetlbfs

445.gobmk: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qnoenablevmx
 -lhugetlbfs

456.hmmmer: Same as 401.bzip2

458.sjeng: Same as 401.bzip2

462.libquantum: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qnoenablevmx
 -q64 -lhugetlbfs

464.h264ref: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -q64
 -lhugetlbfs

C++ benchmarks:

471.omnetpp: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qrtti -lsmartheap

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qnoenablevmx
 -lhugetlbfs

483.xalancbmk: -Wl,-q -O4 -lsmartheap

Peak Other Flags

C benchmarks:

-qipa=noobject -qipa=threads

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Peak Other Flags (Continued)

C++ benchmarks:

-qipa=noobject -qipa=threads

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/lop-xl-flags.20090714.01.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/lop-xl-flags.20090714.01.xml>

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