SPEC® CINT2006 Result

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IBM Corporation

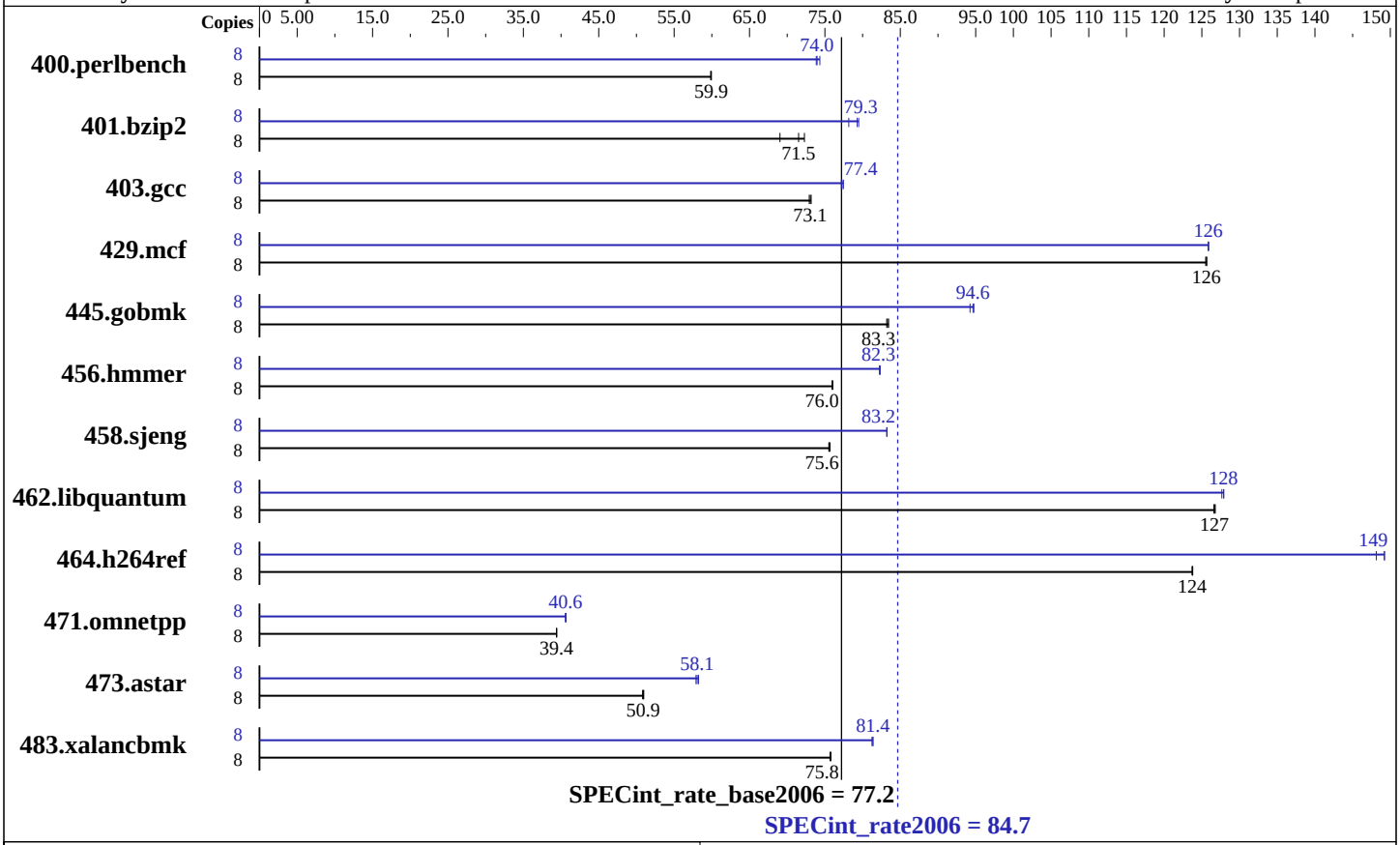
IBM BladeCenter JS22 (4.0 GHz, 4 core, SLES)

SPECint®_rate2006 = 84.7

SPECint_rate_base2006 = 77.2

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Oct-2007
Hardware Availability: Nov-2007
Software Availability: Sep-2007



Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	4000
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	4 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:	None
Other Cache:	None
Memory:	16 GB (4x4 GB) DDR2 667 MHz
Disk Subsystem:	1x73 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:	ext3
System State:	Multi-User
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	-IBM Post-Link Optimization for Linux on POWER, Version 5.4.0-10 -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	1306	59.8	**1304**	**59.9**	1304	59.9	8	1058	73.9	**1057**	**74.0**	1052	74.3
401.bzip2	8	1068	72.3	1118	69.0	**1080**	**71.5**	8	**974**	**79.3**	988	78.2	971	79.5
403.gcc	8	883	72.9	880	73.2	**881**	**73.1**	8	834	77.2	832	77.4	**832**	**77.4**
429.mcf	8	**581**	**126**	581	126	581	126	8	**580**	**126**	579	126	580	126
445.gobmk	8	1009	83.2	**1007**	**83.3**	1006	83.5	8	890	94.3	886	94.8	**887**	**94.6**
456.hmmer	8	**982**	**76.0**	982	76.0	982	76.0	8	908	82.2	907	82.3	**907**	**82.3**
458.sjeng	8	1282	75.5	**1281**	**75.6**	1279	75.7	8	1163	83.2	1163	83.2	**1163**	**83.2**
462.libquantum	8	1309	127	1307	127	**1308**	**127**	8	**1296**	**128**	1299	128	1296	128
464.h264ref	8	1430	124	**1431**	**124**	1431	124	8	1195	148	1186	149	**1187**	**149**
471.omnetpp	8	1269	39.4	1268	39.4	**1269**	**39.4**	8	1229	40.7	**1231**	**40.6**	1232	40.6
473.astar	8	1102	51.0	**1103**	**50.9**	1105	50.8	8	964	58.2	970	57.9	**967**	**58.1**
483.xalancbmk	8	728	75.8	729	75.7	**729**	**75.8**	8	**678**	**81.4**	679	81.2	678	81.4

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

General Notes

```
kernel release 2.6.16.53-0.8-ppc64.

See flags file for details on following settings.

ulimit -s (stack) set to unlimited.


The binaries were compiled on a system with 32 GB of memory.

Large pages reserved as follows by root user:
    echo 530 > /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 XLFRTEOPTS=intrinthds=1

fdpr binary optimization tool used for
    400.perlbench 401.bzip2 403.gcc 429.mcf 456.hmmer 458.sjeng
    462.libquantum 464.h264ref 473.astar 483.xalancbmk

Benchmarks bound to a processor using numactl on the submit command.
```

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
```

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.hmmer: 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 -lsmartheap

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

Peak Other Flags

C benchmarks:
-qipa=noobject -qipa=threads

Continued on next page

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.20090714.00.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/lop-xl-flags.20090714.00.xml`

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