SPEC® CINT2006 Result

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IBM Corporation

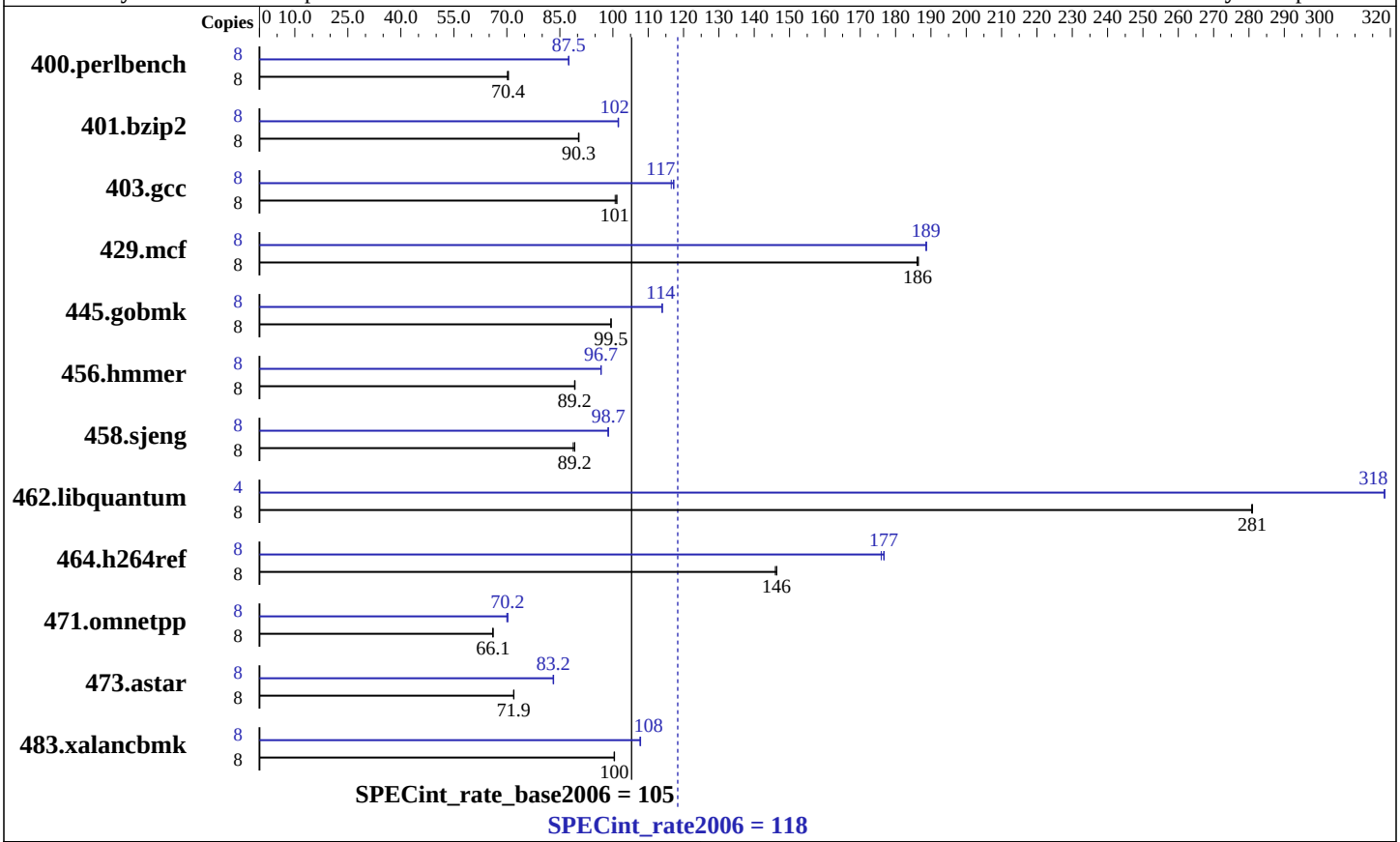
IBM System p 570 (4.7 GHz, 4 core, SLES)

SPECint®_rate2006 = 118

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.hmmer	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 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 taskset 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 -lhugetlbfs

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.20090714.01.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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