SPEC® CINT2006 Result

IBM Corporation

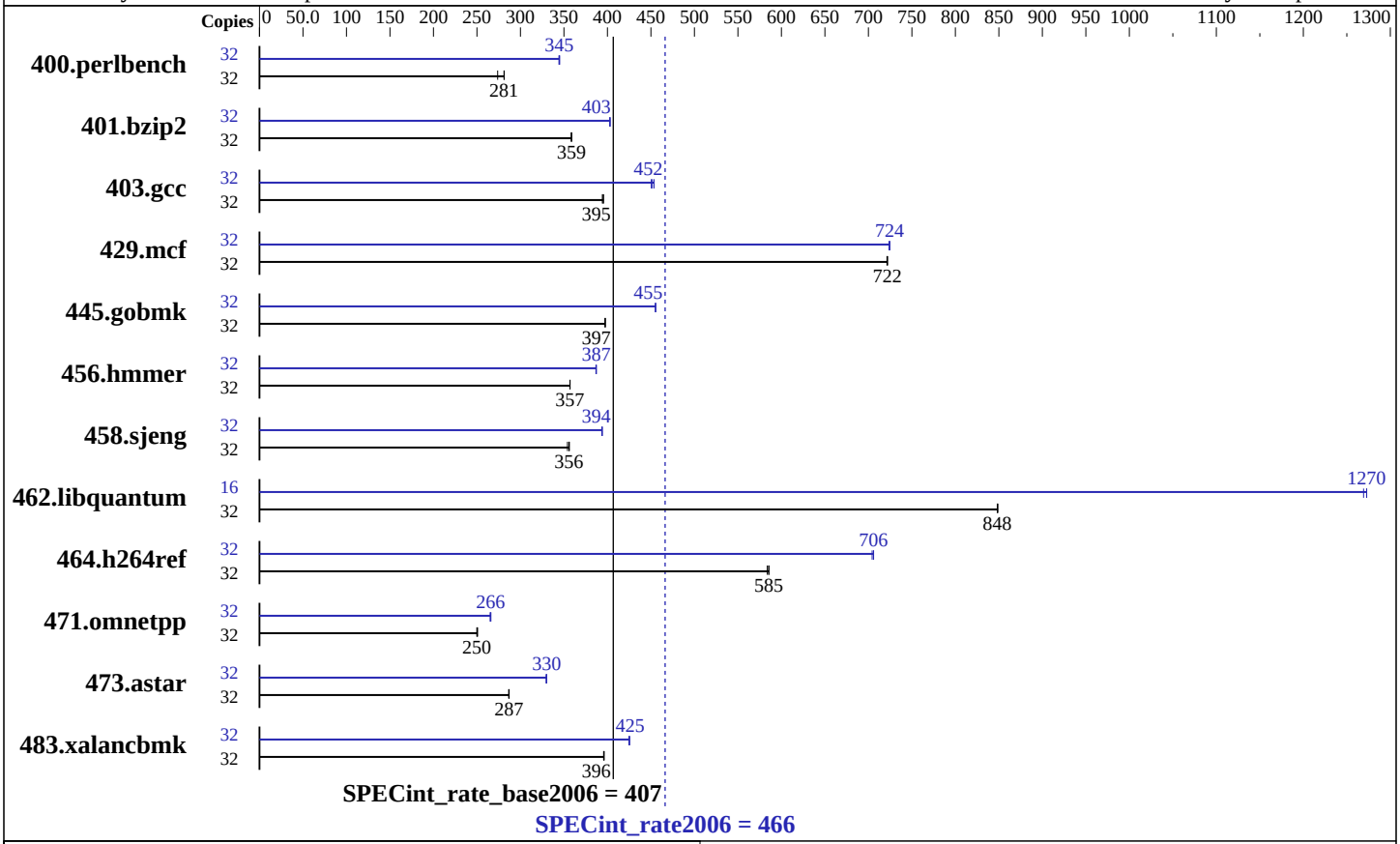
IBM System p 570 (4.7 GHz, 16 core, SLES)

SPECint®_rate2006 = 466

SPECint_rate_base2006 = 407

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

Test date: Jul-2007
Hardware Availability: Jun-2007
Software Availability: Sep-2007



Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	4700
FPU:	Integrated
CPU(s) enabled:	16 cores, 8 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:	128 GB (64x2 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	32	1142	274	**1112**	**281**	1111	281	32	906	345	908	344	**907**	**345**
401.bzip2	32	861	359	861	358	**861**	**359**	32	766	403	767	403	**767**	**403**
403.gcc	32	651	395	**652**	**395**	654	394	32	568	454	**570**	**452**	572	450
429.mcf	32	**404**	**722**	404	722	405	721	32	**403**	**724**	403	725	403	724
445.gobmk	32	845	397	845	397	**845**	**397**	32	**737**	**455**	737	455	737	455
456.hmmer	32	836	357	**836**	**357**	837	357	32	772	387	771	387	**771**	**387**
458.sjeng	32	1094	354	**1088**	**356**	1087	356	32	983	394	**983**	**394**	984	393
462.libquantum	32	782	848	781	849	**782**	**848**	16	261	1270	**260**	**1270**	260	1270
464.h264ref	32	1209	586	1213	584	**1210**	**585**	32	1003	706	1005	704	**1003**	**706**
471.omnetpp	32	800	250	**800**	**250**	798	251	32	752	266	**753**	**266**	754	265
473.astar	32	**783**	**287**	784	286	783	287	32	**681**	**330**	682	329	680	330
483.xalancbmk	32	557	396	**558**	**396**	558	396	32	**519**	**425**	519	425	520	425

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 3200 > /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`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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