



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 826

IBM Power 570 (4.2 GHz, 32 core, RedHat)

SPECint_rate_base2006 = 673

CPU2006 license: 11

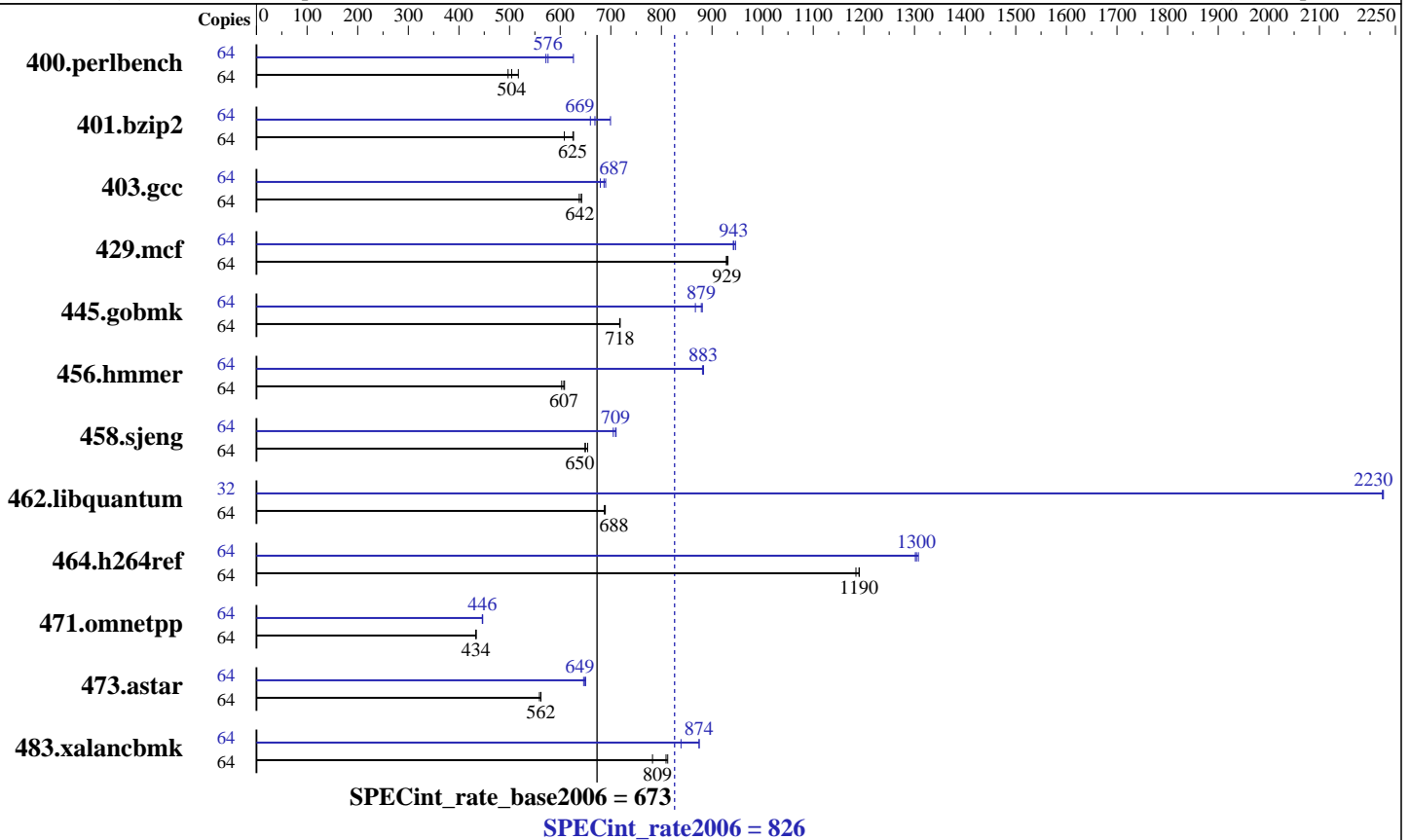
Test date: Sep-2008

Test sponsor: IBM Corporation

Hardware Availability: Nov-2008

Tested by: IBM Corporation

Software Availability: Sep-2008



Hardware

CPU Name: POWER6+
 CPU Characteristics:
 CPU MHz: 4200
 FPU: Integrated
 CPU(s) enabled: 32 cores, 16 chips, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 4,8,16,24,32 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: Red Hat Enterprise Linux Server release 5.2, Kernel 2.6.18-92.el5
 Compiler: IBM XL C/C++ for Linux, V10.1
 Auto Parallel: No
 File System: ext3
 System State: Run Level 3 (Multi-User)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: -IBM Post-Link Optimization for Linux on POWER, Version 5.4.0-18
 -MicroQuill SmartHeap 8.1



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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	64	1258	497	1240	504	1209	517	64	1086	576	1093	572	998	626
401.bzip2	64	1015	608	988	625	986	626	64	936	660	883	699	924	669
403.gcc	64	802	642	802	642	808	638	64	758	679	747	690	750	687
429.mcf	64	627	932	628	929	629	928	64	617	946	619	943	620	942
445.gobmk	64	934	718	935	718	936	718	64	762	881	764	879	774	867
456.hammer	64	981	609	990	603	983	607	64	678	881	676	883	676	883
458.sjeng	64	1192	650	1184	654	1193	649	64	1099	705	1090	710	1092	709
462.libquantum	64	1929	687	1927	688	1924	689	32	298	2230	298	2220	298	2230
464.h264ref	64	1196	1180	1190	1190	1189	1190	64	1086	1300	1088	1300	1083	1310
471.omnetpp	64	923	434	922	434	922	434	64	896	446	896	446	895	447
473.astar	64	804	559	800	562	799	562	64	695	646	692	649	691	650
483.xalancbmk	64	564	782	544	812	546	809	64	527	839	505	875	505	874

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

Submit Notes

The config file option 'submit' was used.
Benchmarks bound to a processor using numactl on the submit command.

General Notes

See flags file for details on following settings.

ulimit -s (stack) set to 1048576.

Large pages reserved as follows by root user:

```
echo 3840 > /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 XLFRTLOPTS=intrinthds=1
```

IBM Post-Link Optimization tool with

```
options "-q -O4 -A 32 -shci 90 -sdp 9" used for
400.perlbench 401.bzip2 403.gcc 429.mcf 456.hammer 458.sjeng
464.h264ref 473.astar 483.xalancbmk
```

```
options "-bf -dp -hr -las -pca -RC -RD -rmte -si -tlo -A 64 -isf 104 -lu 8 -rt 0.16
-hrf 0.18 -ihf 40 -sdp 6 -sdpsms 128 -shci 65 -si -sidf 45" used for
429.mcf
```

```
options "-q -O3 -A 32" used for
445.gobmk
```

```
options "-bf -dp -lro -nop -RC -RD -tb -tlo -vro -A 4
```

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General Notes (Continued)

-isf 88 -lu 8 -hrf 0.10 -sdp 4 -lun 27" used for
462.libquantum

Base Compiler Invocation

C benchmarks:

xlc -qlanglvl=extc99

C++ benchmarks:

x1C

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 -qarch=pwr6 -qtune=pwr6 -qalias=noansi -qalloca -lhugetlbfs

C++ benchmarks:

-O5 -qarch=pwr6 -qtune=pwr6 -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

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Peak Compiler Invocation (Continued)

C++ benchmarks:
x1C

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 -qarch=pwr6
-qtune=pwr6 -qalias=noansi -lsmartheap
401.bzip2: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=pwr6
-qtune=pwr6 -lhugetlbfs
403.gcc: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6
-qtune=pwr6 -qalloca -q64 -lhugetlbfs
429.mcf: -Wl,-q -O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx
-lhugetlbfs
445.gobmk: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6
-qtune=pwr6 -qnoenablevmx -lhugetlbfs
456.hmmmer: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6
-qtune=pwr6 -lhugetlbfs
458.sjeng: -Wl,-q -O5 -qarch=pwr6 -qtune=pwr6 -lhugetlbfs
462.libquantum: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6
-qtune=pwr6 -qnoenablevmx -q64 -lhugetlbfs
464.h264ref: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6
-qtune=pwr6 -q64 -lhugetlbfs

C++ benchmarks:

471.omnetpp: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6 -qtune=pwr6
-qrtti -lsmartheap

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Peak Optimization Flags (Continued)

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6
-qtune=pwr6 -qnoenablevmx -lsmartheap

483.xalancbmk: -Wl,-q -O5 -qarch=pwr6 -qtune=pwr6 -lsmartheap

Peak Other Flags

C benchmarks:

-qipa=noobject -qipa=threads

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/IBM-Linux-XL.20090713.html>

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

<http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20090713.xml>

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For other inquiries, please contact webmaster@spec.org.

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