SPEC® CINT2006 Result

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IBM Corporation

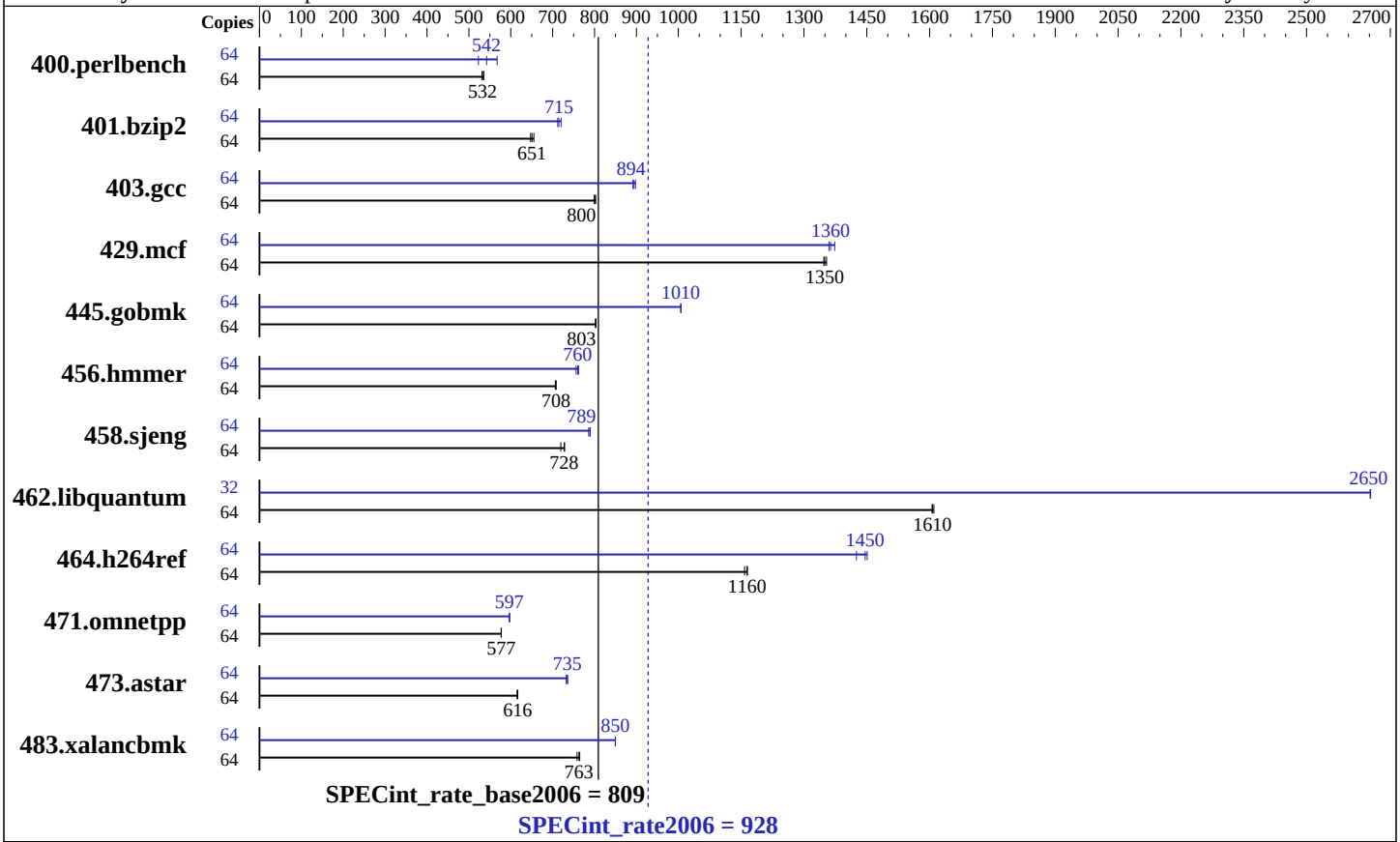
IBM Power 575 (4.7 GHz, 32 core, RedHat)

SPECint®_rate2006 = 928

SPECint_rate_base2006 = 809

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

Test date: May-2008
Hardware Availability: May-2008
Software Availability: May-2008



Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	4700
FPU:	Integrated
CPU(s) enabled:	32 cores, 16 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	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 533 MHz
Disk Subsystem:	2x146 GB SFF SAS 10K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Advanced Platform 5.2 for IBM POWER
Compiler:	IBM XL C/C++ Advanced Edition for Linux, V9.0
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 5.4.0-17 -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	1167	536	**1174**	**532**	1177	531	64	1196	523	**1153**	**542**	1102	567
401.bzip2	64	943	655	954	647	**949**	**651**	64	858	720	867	712	**864**	**715**
403.gcc	64	645	799	**644**	**800**	642	803	64	578	892	574	898	**576**	**894**
429.mcf	64	433	1350	431	1350	**432**	**1350**	64	429	1360	**428**	**1360**	425	1370
445.gobmk	64	**836**	**803**	837	802	835	804	64	667	1010	**667**	**1010**	667	1010
456.hmmer	64	844	708	845	706	**844**	**708**	64	790	756	**786**	**760**	784	762
458.sjeng	64	**1064**	**728**	1063	728	1076	719	64	981	789	985	786	**981**	**789**
462.libquantum	64	826	1610	**825**	**1610**	824	1610	32	**250**	**2650**	250	2650	250	2650
464.h264ref	64	1223	1160	**1216**	**1160**	1216	1160	64	976	1450	**979**	**1450**	994	1430
471.omnetpp	64	693	577	**693**	**577**	693	577	64	670	597	**670**	**597**	670	597
473.astar	64	731	615	**729**	**616**	728	617	64	**611**	**735**	611	736	614	732
483.xalancbmk	64	578	765	582	758	**579**	**763**	64	520	850	**520**	**850**	520	850

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

General Notes

```
kernel release 2.6.18-91.el5.
See flags file for details on following settings.

ulimit -s (stack) set to 1048576.

System set to Enhanced mode when defining partition on HMC
System set to "Chip affinity" mode using the HMC command
 chsyscfg ... -i "addr_broadcast_perf_policy=chip_affinity"
Large pages reserved as follows by root user:
    echo 4240 > /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 XLFRTEOPTS=intrinthds=1

IBM Post-Link Optimization tool used for
    400.perlbench 401.bzip2 403.gcc 429.mcf 445.gobmk 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
```

Continued on next page

Base Compiler Invocation (Continued)

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

Continued on next page

Peak Portability Flags (Continued)

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: `-Wl,-q -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`

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.20090713.00.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20090713.00.xml

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 17:40:48 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 25 June 2008.