SPEC® CINT2006 Result

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IBM Corporation

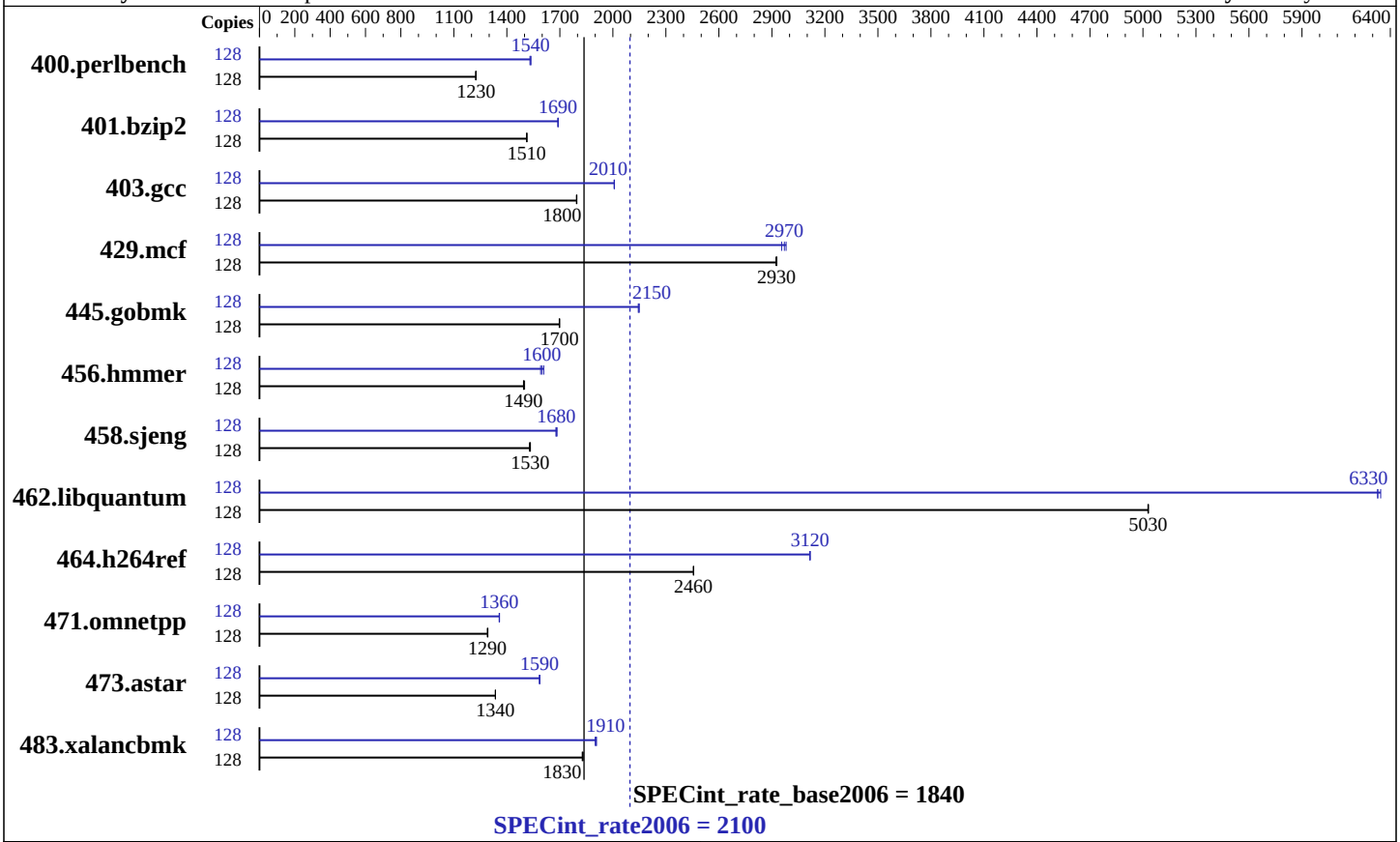
IBM Power 595 (5.0 GHz, 64 core, RedHat)

SPECint®_rate2006 = 2100

SPECint_rate_base2006 = 1840

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

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



Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	5000
FPU:	Integrated
CPU(s) enabled:	64 cores, 32 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	8,16,24,32,40,48,56,64 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:	512 GB (256x2 GB) DDR2 667 MHz
Disk Subsystem:	4x146 GB SCSI 15K 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 Updated with the Mar2008 PTF.
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	128	1023	1220	1020	1230	**1020**	**1230**	128	814	1540	817	1530	**815**	**1540**
401.bzip2	128	816	1510	**817**	**1510**	817	1510	128	731	1690	**731**	**1690**	731	1690
403.gcc	128	**574**	**1800**	574	1790	574	1800	128	513	2010	513	2010	**513**	**2010**
429.mcf	128	399	2920	**399**	**2930**	399	2930	128	**393**	**2970**	392	2980	395	2960
445.gobmk	128	791	1700	**791**	**1700**	790	1700	128	625	2150	**625**	**2150**	626	2140
456.hmmer	128	799	1490	**799**	**1490**	796	1500	128	**747**	**1600**	751	1590	742	1610
458.sjeng	128	**1011**	**1530**	1014	1530	1010	1530	128	923	1680	**922**	**1680**	920	1680
462.libquantum	128	**527**	**5030**	527	5030	527	5030	128	419	6330	**419**	**6330**	418	6350
464.h264ref	128	**1153**	**2460**	1153	2460	1153	2460	128	909	3120	**909**	**3120**	910	3110
471.omnetpp	128	619	1290	**620**	**1290**	620	1290	128	589	1360	590	1360	**589**	**1360**
473.astar	128	673	1340	673	1330	**673**	**1340**	128	**567**	**1590**	567	1580	566	1590
483.xalancbmk	128	**483**	**1830**	483	1830	482	1830	128	465	1900	**463**	**1910**	463	1910

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.
```

General Notes

```
kernel release 2.6.18-92.el5.

See flags file for details on following settings.

ulimit -s (stack) set to 1048576.


System in normal architected mode

Large pages reserved as follows by root user:
    echo 8960 > /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 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 -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
```

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 -qarch=pwr6 -qtune=pwr6 -qalias=noansi -lsmartheap

401.bzip2: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -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.hmmer: Same as 401.bzip2

458.sjeng: Same as 401.bzip2

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) -O5 -qarch=pwr6 -qtune=pwr6 -qrtti -lsmartheap

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -lsmartheap

483.xalancbmk: -Wl,-q -O4 -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.20090713.00.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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