SPEC® CINT2006 Result

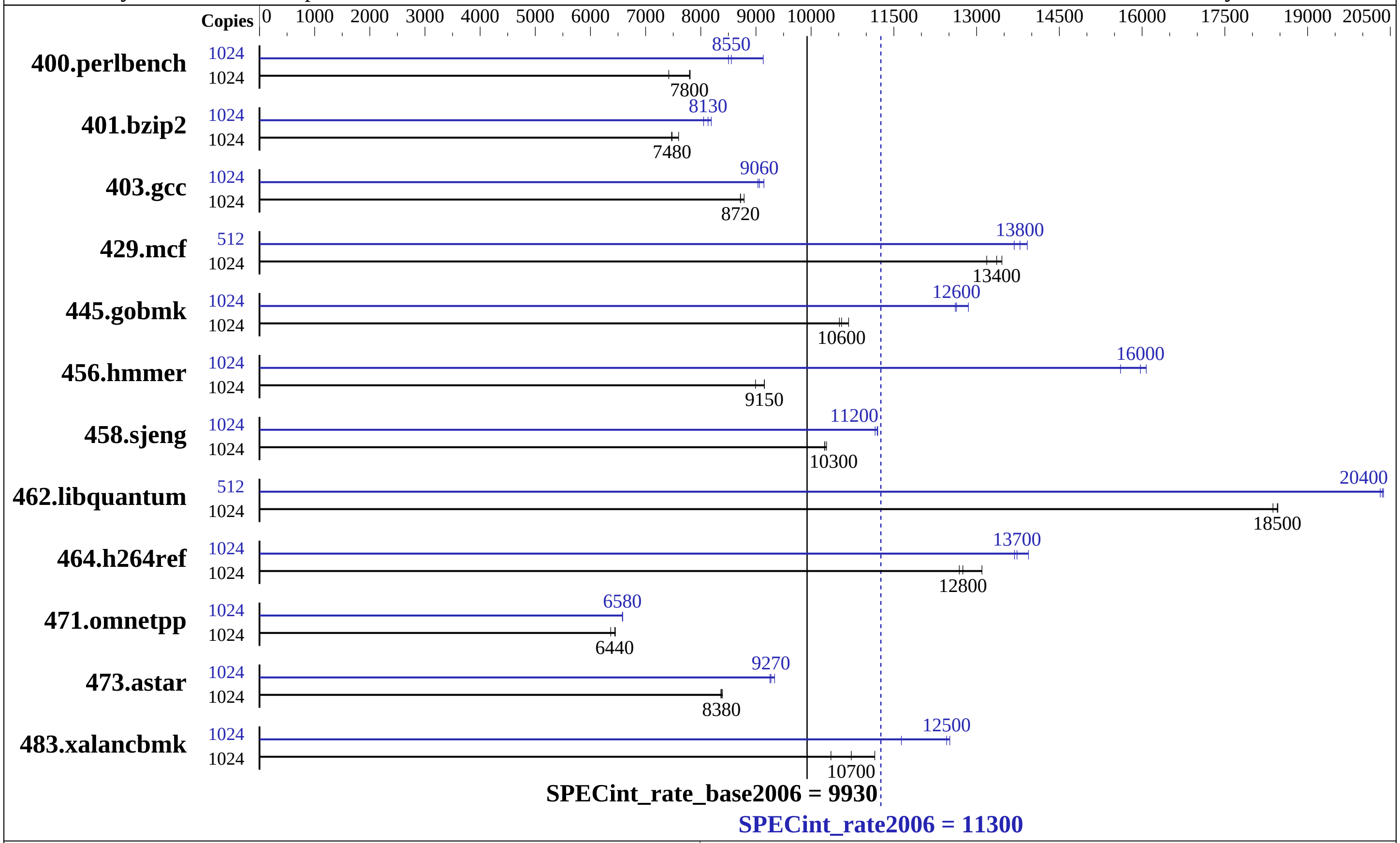
IBM Corporation

SPECint®_rate2006 = 11300

IBM Power 795 (4.0 GHz, 256 core, RedHat)

SPECint_rate_base2006 = 9930

CPU2006 license:	11	**Test date:**	Oct-2010
Test sponsor:	IBM Corporation	**Hardware Availability:**	Sep-2010
Tested by:	IBM Corporation	**Software Availability:**	Nov-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 4.14 GHz
CPU MHz:	4004
FPU:	Integrated
CPU(s) enabled:	256 cores, 32 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	32,64,96,128,160,192,224,256 cores
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	4 MB I+D on chip per core
Other Cache:	None
Memory:	2 TB (256x8 GB) DDR3 1066 MHz
Disk Subsystem:	17x146.8 GB Raid0 SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.0 (ppc64), Kernel 2.6.32-71.el6.ppc64
Compiler:	IBM XL C/C++ for Linux, V11.1 Updated with the Nov2010 PTF
Auto Parallel:	No
File System:	ext2
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	-Post-Link Optimization for Linux on POWER, Version 5.5.0-3 -MicroQuill SmartHeap 9

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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	1024	**1283**	**7800**	1348	7420	1281	7810	1024	1177	8500	1096	9130	**1170**	**8550**
401.bzip2	1024	1323	7470	1301	7600	**1321**	**7480**	1024	1227	8050	**1215**	**8130**	1206	8190
403.gcc	1024	946	8720	**945**	**8720**	938	8790	1024	901	9140	**910**	**9060**	912	9040
429.mcf	1024	694	13500	708	13200	**699**	**13400**	512	**339**	**13800**	335	13900	341	13700
445.gobmk	1024	1006	10700	1022	10500	**1018**	**10600**	1024	836	12900	**850**	**12600**	852	12600
456.hmmer	1024	1063	8990	**1044**	**9150**	1044	9150	1024	612	15600	**598**	**16000**	594	16100
458.sjeng	1024	1209	10200	1205	10300	**1209**	**10300**	1024	1105	11200	**1106**	**11200**	1110	11200
462.libquantum	1024	1149	18500	**1150**	**18500**	1155	18400	512	522	20300	**521**	**20400**	521	20400
464.h264ref	1024	1730	13100	**1777**	**12800**	1786	12700	1024	1626	13900	**1650**	**13700**	1656	13700
471.omnetpp	1024	992	6450	**994**	**6440**	1005	6370	1024	972	6580	973	6580	**973**	**6580**
473.astar	1024	859	8360	857	8390	**858**	**8380**	1024	777	9250	770	9340	**775**	**9270**
483.xalancbmk	1024	682	10400	633	11200	**659**	**10700**	1024	607	11600	565	12500	**567**	**12500**

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

Peak Tuning Notes

```
Post-Link optimization tool used for:
400.perlbench
     with options -O4 -omullX for optimization phase,
     and -imullX for instrumentation phase
401.bzip2
     with options -O4 -vrox
403.gcc
    with options -O4 -nodp -rtb
429.mcf 445.gobmk 458.sjeng 473.astar
    with options -O3
456.hmmer
    with options -O4 -nodp -m power7
462.libquantum
    with options -O4 -vrox -nodp
464.h264ref
    with options -O4 -vrox -nodp -rtb
471.omnetpp
    with options -O3 -lu -1 -nodp -sdp 9
483.xalancbmk
    with options -O3 -m power7
```

Submit Notes

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

Operating System Notes

```
ulimit -s (stack) set to 1048576.
ulimit -n (open files) set to 20480.
ulimit -u (user processes) set to unlimited.
Large pages reserved as follows by root user:
    echo 56320 > /proc/sys/vm/nr_overcommit_hugepages
The following environment varibles were set before the runspec command:
    export HUGETLB_VERBOSE=0
    export HUGETLB_MORECORE=yes
    export XLFRTEOPTS=intrinthds=1
```

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 -lhugetlbfs`

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
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 -qipa=level=2 -lsmartheap

401.bzip2: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=pwr7 -qtune=pwr7 -lhugetlbfs

403.gcc: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qalloca -lhugetlbfs

429.mcf: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -lhugetlbfs

445.gobmk: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -lhugetlbfs

456.hmmer: -Wl,-q -O5 -qsimd -qassert=refalign -qipa=inline=threshold=2888 -qipa=inline=limit=11880 -lhugetlbfs

458.sjeng: Same as 429.mcf

462.libquantum: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -q64 -lhugetlbfs

464.h264ref: Same as 429.mcf

C++ benchmarks:

471.omnetpp: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qrtti -lhugetlbfs -lsmartheap

Continued on next page

Peak Optimization Flags (Continued)

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qipa=inline=threshold=2468 -qipa=inline=limit=11060 -qipa=partition=large -lhugetlbfs -lsmartheap

483.xalancbmk: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr5 -qtune=pwr5 -qipa=inline=threshold=2468 -qipa=inline=limit=11060 -qipa=partition=large -lhugetlbfs -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.20101123.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20101123.xml

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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 14:23:57 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 23 November 2010.