SPEC® CINT2006 Result

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IBM Corporation

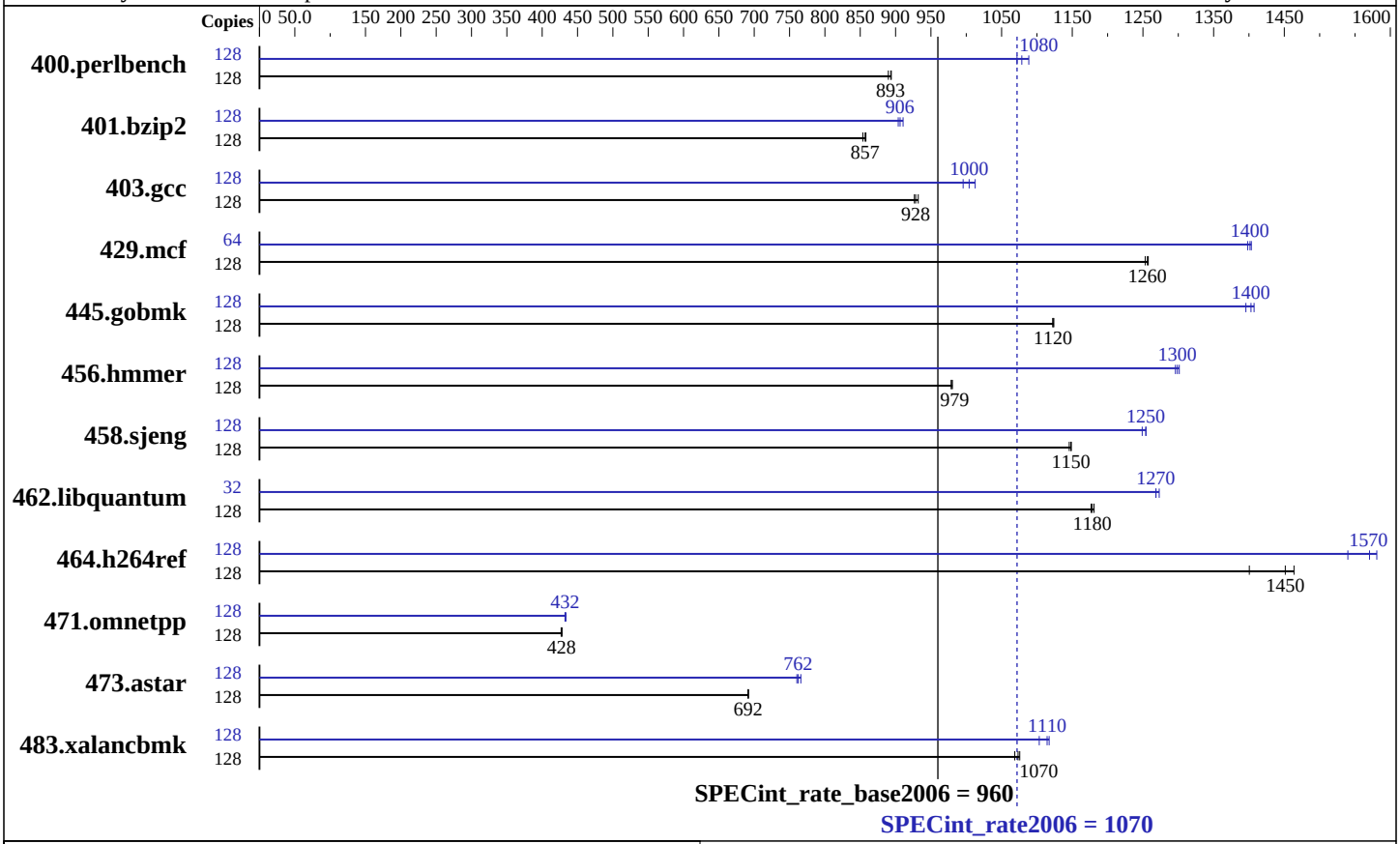
IBM Power 750 Express (3.55 GHz, 32 core, SLES)

SPECint®_rate2006 = 1070

SPECint_rate_base2006 = 960

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

Test date: Jan-2010
Hardware Availability: Feb-2010
Software Availability: Dec-2009



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.86 GHz
CPU MHz:	3550
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	8,16,24,32 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:	256 GB (32x8 GB) DDR3 1066 MHz
Disk Subsystem:	8x146.8 GB SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (ppc64), Kernel 2.6.27.19-5-ppc64
Compiler:	IBM XL C/C++ for Linux, V10.1 Updated with the Oct2009 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:	-Post-Link Optimization for Linux on POWER, Version 5.5.0-1 -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	128	1406	890	1399	894	**1400**	**893**	128	1149	1090	1167	1070	**1159**	**1080**
401.bzip2	128	1440	858	**1442**	**857**	1447	854	128	1356	911	**1363**	**906**	1367	904
403.gcc	128	1105	932	**1110**	**928**	1112	927	128	**1026**	**1000**	1018	1010	1035	996
429.mcf	128	928	1260	932	1250	**929**	**1260**	64	417	1400	416	1400	**416**	**1400**
445.gobmk	128	1195	1120	**1196**	**1120**	1196	1120	128	954	1410	**957**	**1400**	962	1400
456.hmmer	128	**1220**	**979**	1218	980	1220	979	128	918	1300	922	1300	**920**	**1300**
458.sjeng	128	1348	1150	1352	1150	**1349**	**1150**	128	1235	1250	1240	1250	**1235**	**1250**
462.libquantum	128	2246	1180	2254	1180	**2251**	**1180**	32	523	1270	**523**	**1270**	521	1270
464.h264ref	128	**1952**	**1450**	1935	1460	2023	1400	128	**1804**	**1570**	1839	1540	1792	1580
471.omnetpp	128	1874	427	**1871**	**428**	1869	428	128	1845	434	**1850**	**432**	1851	432
473.astar	128	**1299**	**692**	1300	691	1299	692	128	1173	766	**1179**	**762**	1182	760
483.xalancbmk	128	826	1070	**823**	**1070**	821	1080	128	801	1100	790	1120	**793**	**1110**

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.
```

Operating System Notes

```
ulimit -s (stack) set to 1048576.
Large pages reserved as follows by root user:
    echo 7040 > /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
```

General Notes

```
  IBM Post-Link Optimization tool with
  options "-O4 -omullX -see 0 -m power6" used for
      400.perlbench 401.bzip2 403.gcc 456.hmmer 458.sjeng
      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 -sdpms 128 -shci 65 -si -sidf 45 -omullX" used for
     429.mcf
  options "-q -O3 -A 32 -omullX" used for
     445.gobmk
  options "-bf -dp -lro -nop -RC -RD -tb -tlo -vro -A 4
           -isf 88 -lu 8 -hrf 0.10 -sdp 4 -lun 27 -omullX" used for
```

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General Notes (Continued)

```
      462.libquantum
   options "-O4 -omullX -see 1" used for
      473.astar
   options "-O4" used for
      464.h264ref
   Whenever option "-omullX" was used during the optimization phase,
      option "-imullX" was also used during the instrumentation phase.

Benchmarks bound to a processor using numactl on the submit command.
See flags file for details on settings.
```

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`
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) `-O3 -qarch=auto -qtune=auto -lhugetlbfs`

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

429.mcf: `-Wl,-q -O5 -qnoenablevmx -lhugetlbfs`

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

456.hmmer: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -lhugetlbfs`

458.sjeng: `-Wl,-q -O5 -lhugetlbfs`

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

464.h264ref: `Same as 456.hmmer`

C++ benchmarks:

471.omnetpp: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qrtti -lsmartheap`

473.astar: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qnoenablevmx -lsmartheap`

Continued on next page

Peak Optimization Flags (Continued)

483.xalancbmk: `-Wl,-q -O5 -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.20100302.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20100302.xml`

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