SPEC® CINT2006 Result

IBM Corporation

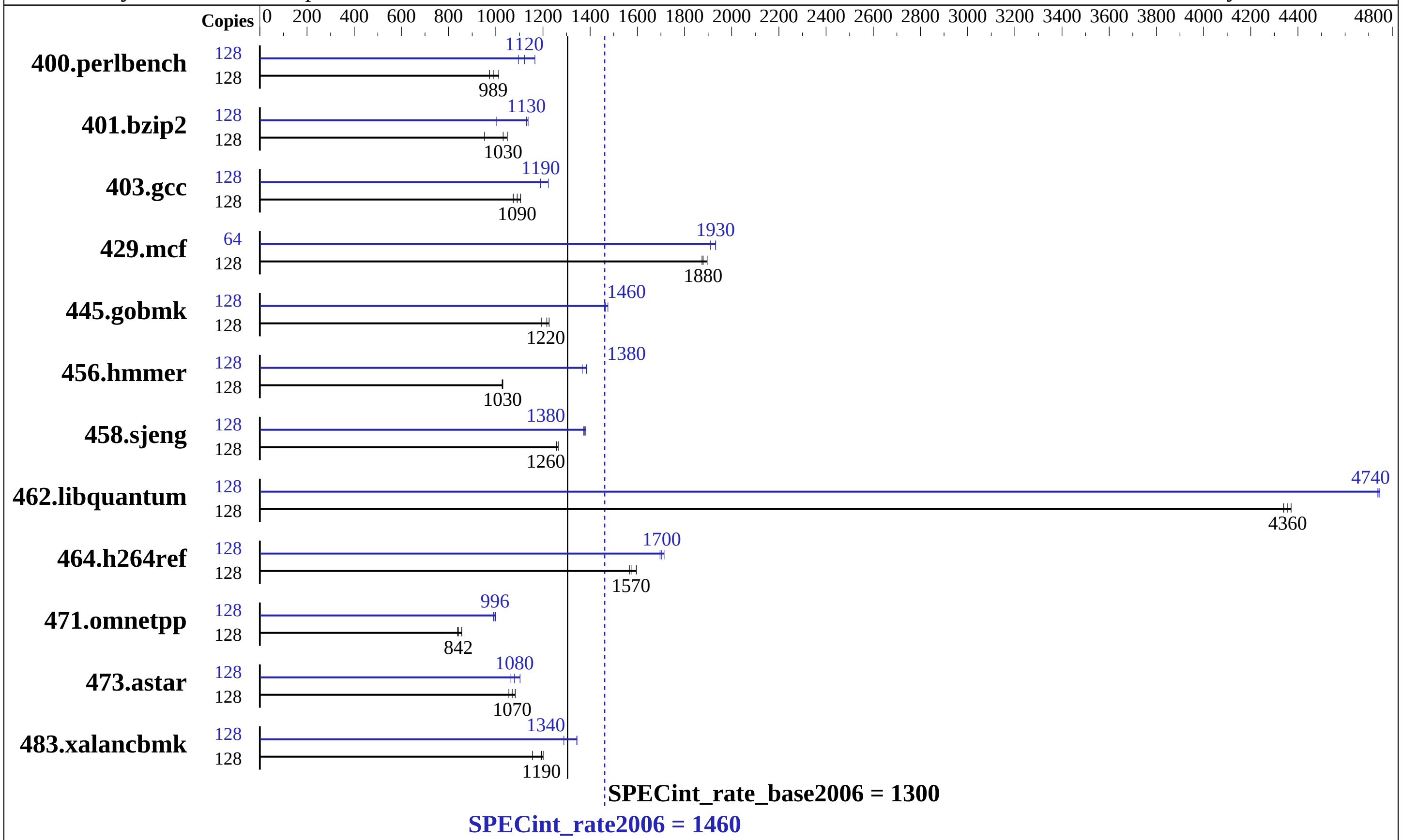
IBM Power 780 (4.14 GHz, 32 core)

SPECint®_rate2006 = 1460

SPECint_rate_base2006 = 1300

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

Test date: Jan-2010
Hardware Availability: Mar-2010
Software Availability: Mar-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	TurboCore mode
CPU MHz:	4140
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 cores/chip, 4 threads/core
CPU(s) orderable:	8,16,24,32,48,64 cores
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	4 MB I+D on chip per core
Other Cache:	16 MB I+D on chip per chip
Memory:	512 GB (64x8 GB) DDR3 1066 MHz
Disk Subsystem:	12x146.8 GB SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	IBM AIX V6.1 with the 6100-04 Technology Level and Service Pack 3
Compiler:	XL C/C++ Enterprise Edition V10.1.0.5 for AIX
Auto Parallel:	No
File System:	AIX/JFS2
System State:	Multi-user
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	None

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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	1284	974	**1264**	**989**	1235	1010	128	1141	1100	**1115**	**1120**	1073	1170
401.bzip2	128	1297	953	**1198**	**1030**	1178	1050	128	1233	1000	**1093**	**1130**	1086	1140
403.gcc	128	**945**	**1090**	932	1110	959	1070	128	843	1220	**866**	**1190**	866	1190
429.mcf	128	616	1900	**621**	**1880**	623	1870	64	**302**	**1930**	306	1910	302	1930
445.gobmk	128	1095	1230	**1104**	**1220**	1126	1190	128	910	1480	**917**	**1460**	919	1460
456.hmmer	128	1163	1030	**1161**	**1030**	1159	1030	128	**862**	**1380**	862	1390	874	1370
458.sjeng	128	1225	1260	1231	1260	**1230**	**1260**	128	1121	1380	1128	1370	**1125**	**1380**
462.libquantum	128	611	4340	607	4370	**609**	**4360**	128	560	4740	559	4750	**559**	**4740**
464.h264ref	128	1775	1600	**1800**	**1570**	1809	1570	128	1653	1710	1670	1700	**1663**	**1700**
471.omnetpp	128	**950**	**842**	935	856	955	838	128	808	990	**803**	**996**	801	999
473.astar	128	830	1080	851	1060	**840**	**1070**	128	815	1100	**832**	**1080**	844	1060
483.xalancbmk	128	764	1160	735	1200	**740**	**1190**	128	685	1290	657	1340	**658**	**1340**

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

Peak Tuning Notes

```
fdpr binary optimization tool used for 400.perlbench
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 401.bzip2
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 403.gcc
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 429.mcf
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 445.gobmk
 with options -O3 -vrox -sdp 9
fdpr binary optimization tool used for 456.hmmer
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 458.sjeng
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 462.libquantum
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 464.h264ref
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 471.omnetpp
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 473.astar
 with options -O4 -vrox -pbsi
```

Submit Notes

```
The config file option 'submit' was used
to assign benchmark copy to specific kernel thread using
the "bindprocessor" command (see flags file for details).
```

Operating System Notes

```
all ulimits set to unlimited.
25600 16M large pages defined with vmo command
```

General Notes

```
Environment variables set by runspec before the start of the run:
MALLOCOPTIONS = "pool"
MEMORY_AFFINITY = "MCM"
XLFRTEOPTS = "intrinthds=1"

 See the flags file for details on settings.
```

Base Compiler Invocation

C benchmarks:
`/usr/vac/bin/xlc -qlanglvl=extc99`

C++ benchmarks:
`/usr/vacpp/bin/xlC`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_AIX`
462.libquantum: `-DSPEC_CPU_AIX`
464.h264ref: `-DSPEC_CPU_AIX -qchars=signed`
483.xalancbmk: `-DSPEC_CPU_AIX`

Base Optimization Flags

C benchmarks:
`-bmaxdata:0x50000000 -O5 -qlargepage -D_ILS_MACROS -qalias=noansi -qalloca -blpdata`

C++ benchmarks:
`-bmaxdata:0x20000000 -O5 -qlargepage -D_ILS_MACROS -qrtti=all -D__IBM_FAST_SET_MAP_ITERATOR -blpdata`

Base Other Flags

C benchmarks:
`-qipa=threads -qipa=noobject -qsuppress=1500-036`

C++ benchmarks:
`-qipa=threads -qipa=noobject -qsuppress=1500-036`

Peak Compiler Invocation

C benchmarks:
`/usr/vac/bin/xlc -qlanglvl=extc99`

C++ benchmarks:
`/usr/vacpp/bin/xlC`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_AIX`
462.libquantum: `-DSPEC_CPU_AIX`
464.h264ref: `-DSPEC_CPU_AIX -qchars=signed`
483.xalancbmk: `-DSPEC_CPU_AIX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-bmaxdata:0x50000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -D_ILS_MACROS -qalias=noansi -qfdpr -blpdata -btextpsize:64K`

401.bzip2: `-bmaxdata:0x4ffffffc -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -D_ILS_MACROS -qfdpr -blpdata`

403.gcc: `-bmaxdata:0x50000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qlargepage -D_ILS_MACROS -qalloca -qfdpr -blpdata`

429.mcf: `-bmaxdata:0x50000000 -O5 -qlargepage -D_ILS_MACROS -qfdpr -blpdata`

445.gobmk: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O3 -qarch=auto -qtune=auto -qlargepage -D_ILS_MACROS -qfdpr -blpdata`

456.hmmer: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qenablevmx -qvecnvol -D_ILS_MACROS -qfdpr -blpdata -btextpsize:64K`

Continued on next page

Peak Optimization Flags (Continued)

458.sjeng: -O5 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -qfdpr -blpdata

462.libquantum: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -q64 -D_ILS_MACROS -qfdpr -blpdata

464.h264ref: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -D_ILS_MACROS -qfdpr -blpdata -btextpsize:64K

C++ benchmarks:

471.omnetpp: -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -D_ILS_MACROS -qfdpr -qalign=natural -qrtti=all -qinlglue -D__IBM_FAST_SET_MAP_ITERATOR -blpdata -btextpsize:64K

473.astar: -bmaxdata:0x20000000 -O5 -qlargepage -D_ILS_MACROS -qfdpr -qenablevmx -qvecnvol -qinlglue -qalign=natural -blpdata

483.xalancbmk: -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -D_ILS_MACROS -qfdpr -qinlglue -D__IBM_FAST_VECTOR -blpdata -btextpsize:64K

Peak Other Flags

C benchmarks:
-qipa=threads -qipa=noobject -qsuppress=1500-036

C++ benchmarks:
-qipa=threads -qipa=noobject -qsuppress=1500-036

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-XL.20100303.html
http://www.spec.org/cpu2006/flags/IBM-AIX.20100303.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-XL.20100303.xml
http://www.spec.org/cpu2006/flags/IBM-AIX.20100303.xml

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

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