



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 1460

IBM Power 780 (4.14 GHz, 32 core)

SPECint_rate_base2006 = 1300

CPU2006 license: 11

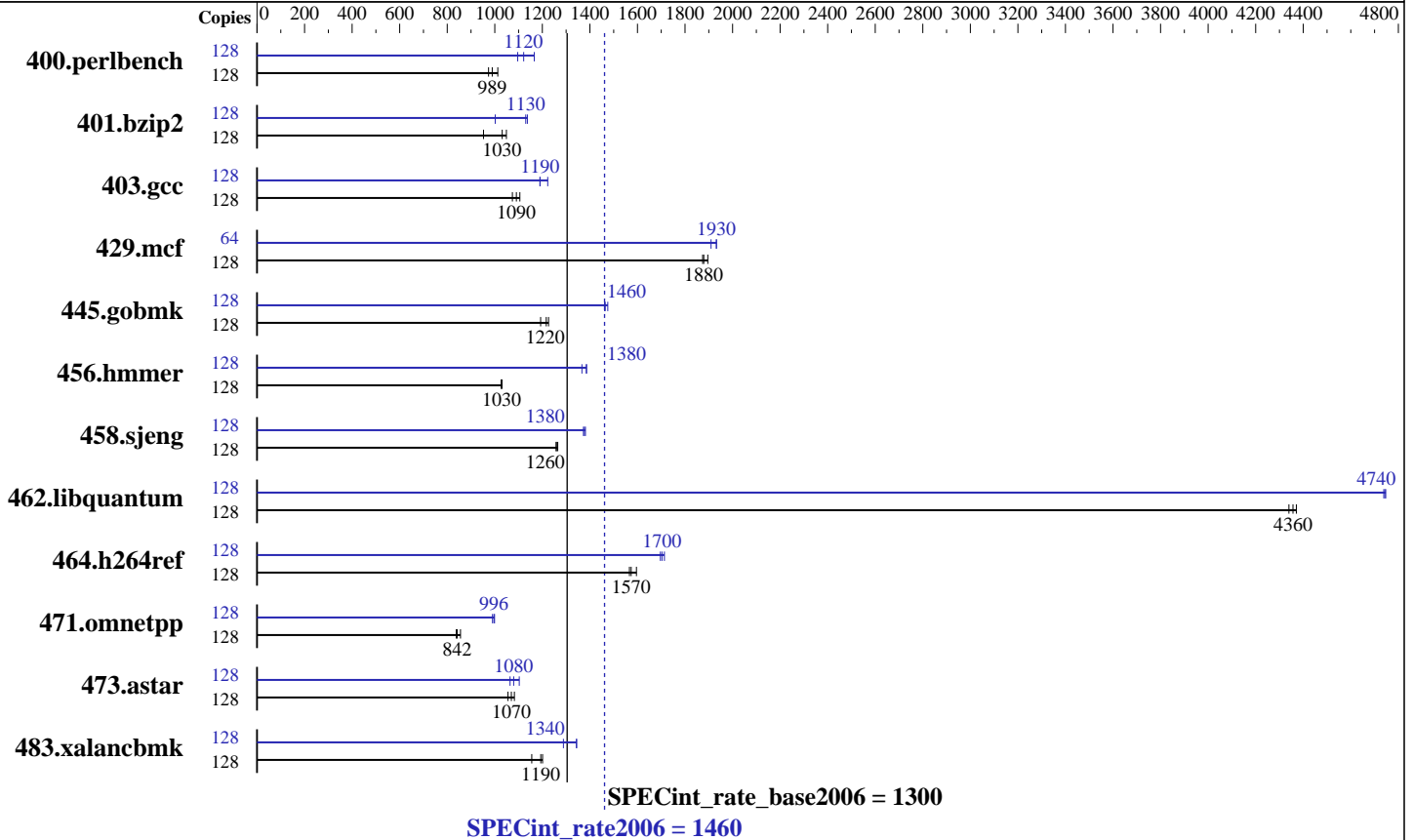
Test date: Jan-2010

Test sponsor: IBM Corporation

Hardware Availability: Mar-2010

Tested by: IBM Corporation

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

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.hammer
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

```



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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



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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.bzp2: -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 -qvecnv01
-D_ILS_MACROS -qfdpr -blpdata -btextpsize:64K

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Peak Optimization Flags (Continued)

458.sjeng: -O5 -qlargepage -qenablevmx -qvecnvml -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 -qvecnvml -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>



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