



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 3520

IBM Power 780 (3.44 GHz, 96 core)

SPECint_rate_base2006 = 3070

CPU2006 license: 11

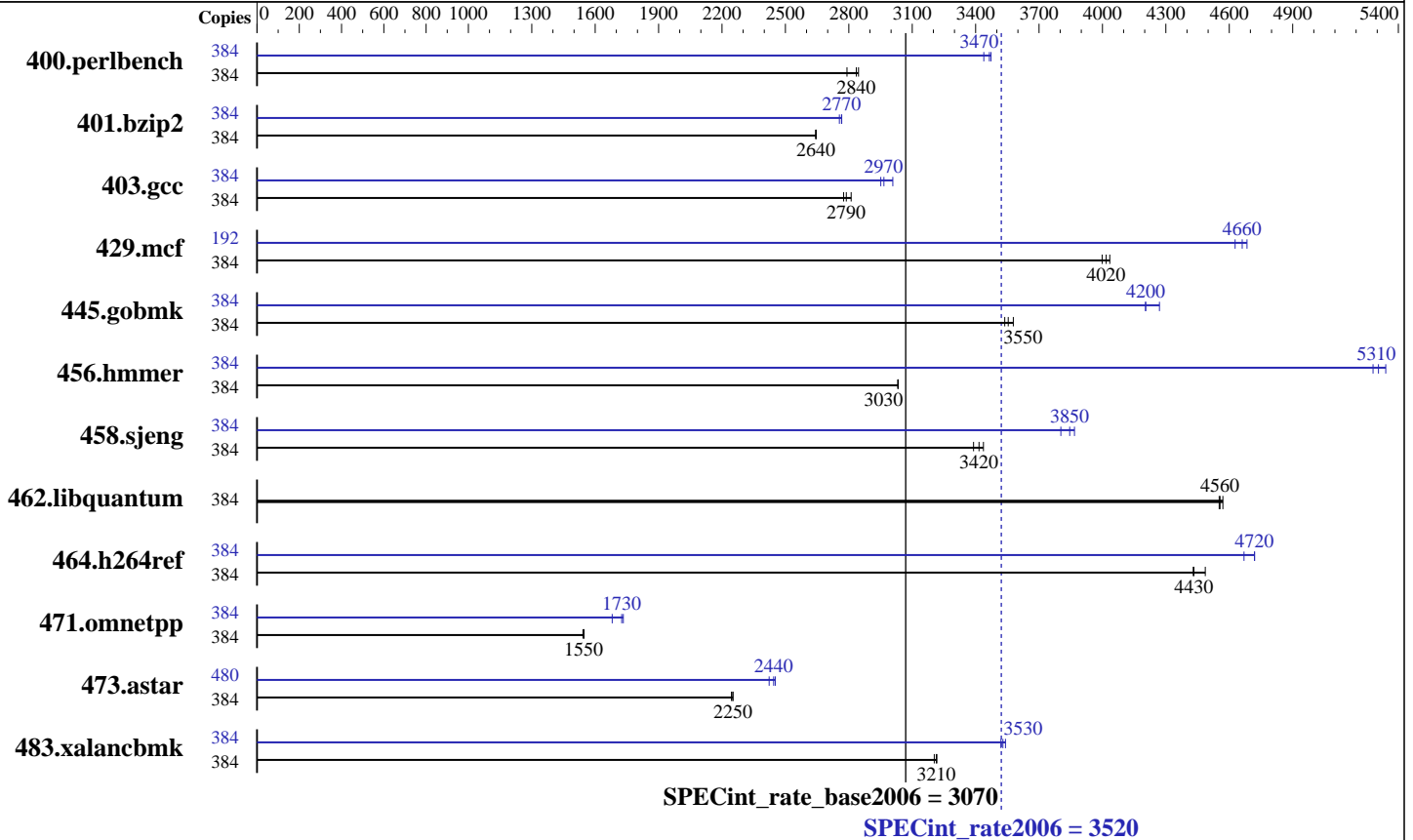
Test date: Sep-2011

Test sponsor: IBM Corporation

Hardware Availability: Oct-2011

Tested by: IBM Corporation

Software Availability: Oct-2011



Hardware

CPU Name: POWER7
 CPU Characteristics: Intelligent Energy Optimization enabled, up to 3.780 GHz
 CPU MHz: 3444
 FPU: Integrated
 CPU(s) enabled: 96 cores, 16 chips, 6 cores/chip, 4 threads/core
 CPU(s) orderable: 24,48,72,96 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: 1 TB (64 x 16 GB) DDR3 1066 MHz
 Disk Subsystem: 12 x 146.8 GB Raid0 SAS SFF 15K RPM
 Other Hardware: None

Software

Operating System: IBM AIX V7.1
 Compiler: C/C++: Version 11.1 of IBM XL C/C++ 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	384	1344	2790	1318	2850	<u>1323</u>	<u>2840</u>	384	1080	3470	<u>1083</u>	<u>3470</u>	1091	3440
401.bzip2	384	1402	2640	1401	2650	<u>1401</u>	<u>2640</u>	384	<u>1340</u>	<u>2770</u>	1339	2770	1345	2760
403.gcc	384	1100	2810	1114	2780	<u>1109</u>	<u>2790</u>	384	1047	2950	<u>1042</u>	<u>2970</u>	1028	3010
429.mcf	384	876	4000	<u>872</u>	<u>4020</u>	868	4030	192	<u>376</u>	<u>4660</u>	378	4630	374	4680
445.gobmk	384	1126	3580	1139	3540	<u>1133</u>	<u>3550</u>	384	943	4270	958	4200	<u>958</u>	<u>4200</u>
456.hammer	384	<u>1182</u>	<u>3030</u>	1181	3030	1182	3030	384	679	5280	671	5340	<u>675</u>	<u>5310</u>
458.sjeng	384	1352	3440	1371	3390	<u>1360</u>	<u>3420</u>	384	<u>1208</u>	<u>3850</u>	1201	3870	1222	3800
462.libquantum	384	1748	4550	<u>1746</u>	<u>4560</u>	1741	4570	384	1748	4550	<u>1746</u>	<u>4560</u>	1741	4570
464.h264ref	384	<u>1917</u>	<u>4430</u>	1894	4490	1919	4430	384	1800	4720	<u>1801</u>	<u>4720</u>	1820	4670
471.omnetpp	384	1556	1540	<u>1552</u>	<u>1550</u>	1551	1550	384	1428	1680	<u>1391</u>	<u>1730</u>	1385	1730
473.astar	384	1197	2250	1201	2240	<u>1197</u>	<u>2250</u>	480	1391	2420	<u>1379</u>	<u>2440</u>	1374	2450
483.xalancbmk	384	<u>824</u>	<u>3210</u>	824	3220	827	3200	384	753	3520	<u>751</u>	<u>3530</u>	748	3540

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

Compiler Invocation Notes

C/C++ compiler update to August 2011 PTF
Version: 11.01.0000.0007

Peak Tuning Notes

fdpr binary optimization tool used for 400.perlbench
with options -O4 -cbpth -1 -sdp -1 -m power7

fdpr binary optimization tool used for 401.bzip2
with options -O4 -vrox -m power7

fdpr binary optimization tool used for 403.gcc
with options -O4 -cbpth -1 -sdp -1 -m power7

fdpr binary optimization tool used for 429.mcf
with options -O4 -nobp -m power7

fdpr binary optimization tool used for 445.gobmk
with options -O3 -m power7

fdpr binary optimization tool used for 456.hammer
with options -O3 -lu -1 -nodp -sdp 9 -m power7

fdpr binary optimization tool used for 458.sjeng
with options -O3 -m power7

fdpr binary optimization tool used for 462.libquantum
with options -O4 -cbpth -1 -sdp -1 -m power7

fdpr binary optimization tool used for 464.h264ref
with options -O4 -rcctf 0 -vrox -RD -m power7

fdpr binary optimization tool used for 471.omnetpp
with options -O3 -cbpth -1 -m power7

fdpr binary optimization tool used for 473.astar
with options -O3 -cbpth -1 -m power7

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Peak Tuning Notes (Continued)

fdpr binary optimization tool used for 483.xalancbmk
with options -O4 -rcctf 0 -nobp -m power7

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

AIX updated to V7.1 TL 1 SP 1 (7.1.1.1)

All ulimits set to unlimited.

38400 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"
XLFRTOPTIONS = "intrinthds=1"

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:
-qipa=threads -bmaxdata:0x50000000 -qlargepage -O5 -D_ILS_MACROS
-qalias=noansi -qalloca -blpdata

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Base Optimization Flags (Continued)

C++ benchmarks:

-qipa=threads -bmaxdata:0x20000000 -qlargepage -O4 -qsimd -qvecnvoll
-D_ILS_MACROS -qrtti=all -D__IBM_FAST_SET_MAP_ITERATOR -blpdata

Base Other Flags

C benchmarks:

-qipa=noobject -qsuppress=1500-036

C++ benchmarks:

-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) -O2
-qarch=auto -qtune=auto -D_ILS_MACROS -qalias=noansi
-blpdata -btextpsize:64K

401.bzip2: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O5 -qlargepage -D_ILS_MACROS -blpdata
-btextpsize:64K

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Peak Optimization Flags (Continued)

403.gcc: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O3 -qarch=auto -qtune=auto -qlargepage
-D_ILS_MACROS -qalloca -blpdata -btextpsize:64K

429.mcf: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O5 -qsimd -qvecnvoll -qlargepage
-D_ILS_MACROS -blpdata -btextpsize:64K

445.gobmk: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O4
-qlargepage -D_ILS_MACROS -blpdata -btextpsize:64K

456.hmmer: -qipa=threads -O5 -qsimd -qvecnvoll -qassert=refalign
-D_ILS_MACROS -blpdata -btextpsize:64K

458.sjeng: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O5
-D_ILS_MACROS -blpdata -btextpsize:64K

462.libquantum: basepeak = yes

464.h264ref: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O5
-D_ILS_MACROS -bdatapsize:64K -bstackpsize:64K
-btextpsize:64K

C++ benchmarks:

471.omnetpp: -qipa=threads -bmaxdata:0x20000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O4 -D_ILS_MACROS -qalign=natural
-qrtti=all -qinlglue -D__IBM_FAST_SET_MAP_ITERATOR
-blpdata -btextpsize:64K

473.astar: -qipa=threads -bmaxdata:0x20000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O4 -qsimd -qvecnvoll -qlargepage
-D_ILS_MACROS -qinlglue -qalign=natural -blpdata
-btextpsize:64K

483.xalancbmk: -qipa=threads -bmaxdata:0x20000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O4 -qsimd -qvecnvoll -qarch=pwr5
-qtune=pwr5 -qlargepage -D_ILS_MACROS -qinlglue
-D__IBM_FAST_VECTOR -blpdata -btextpsize:64K

Peak Other Flags

C benchmarks (except as noted below):

-qipa=noobject -qsuppress=1500-036

400.perlbench: -qsuppress=1500-036

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Peak Other Flags (Continued)

C++ benchmarks:
-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.20110613.html>
<http://www.spec.org/cpu2006/flags/IBM-AIX.20110613.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/IBM-XL.20110613.xml>
<http://www.spec.org/cpu2006/flags/IBM-AIX.20110613.xml>

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