



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 5400

IBM Power E880 (4.35 GHz, 64 core)

SPECint_rate_base2006 = 4130

CPU2006 license: 11

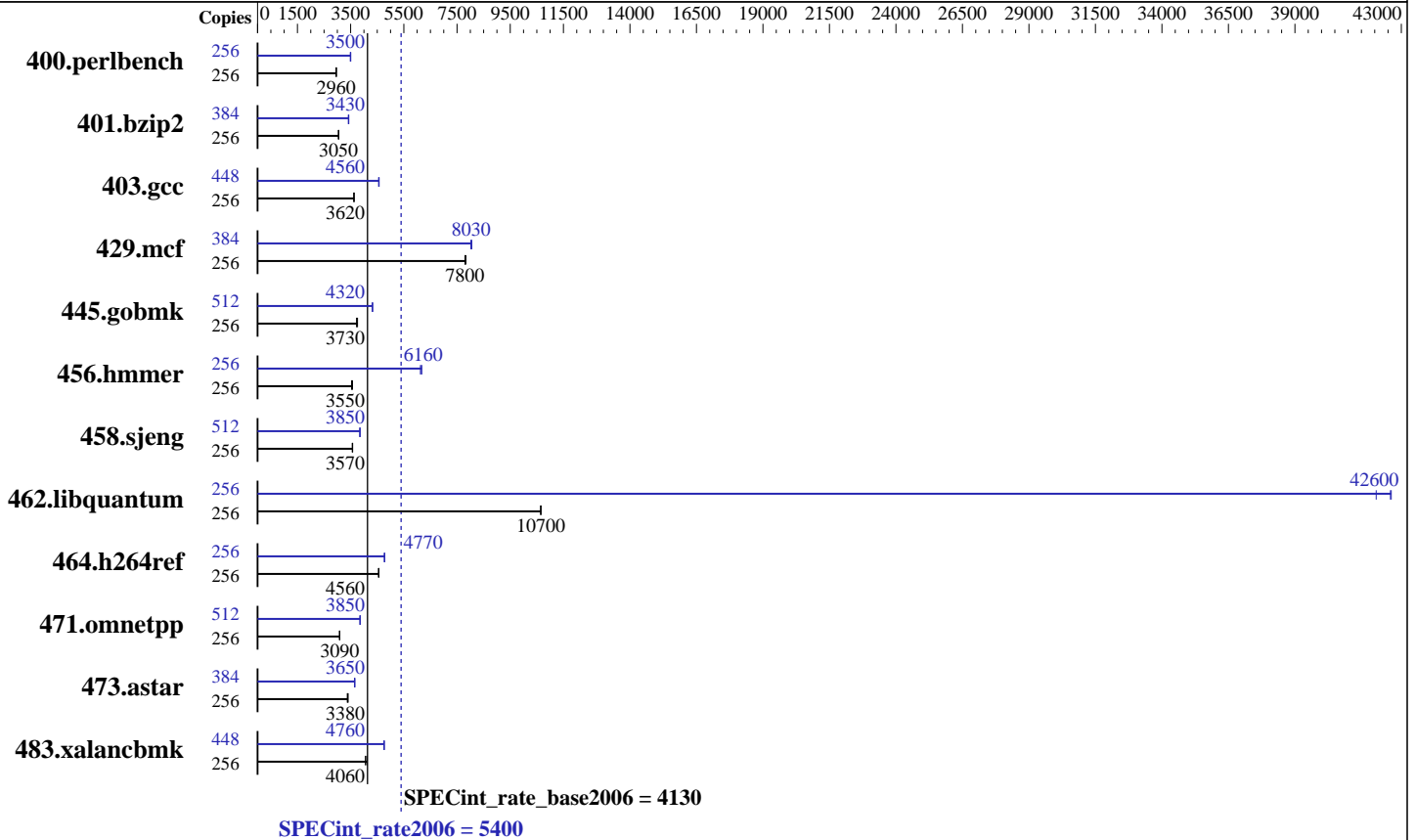
Test date: Sep-2014

Test sponsor: IBM Corporation

Hardware Availability: Nov-2014

Tested by: IBM Corporation

Software Availability: Nov-2014



Hardware

CPU Name: POWER8
 CPU Characteristics: Intelligent Energy Optimization enabled, up to 4.53 GHz
 CPU MHz: 4359
 FPU: Integrated
 CPU(s) enabled: 64 cores, 8 chips, 8 cores/chip, 8 threads/core
 CPU(s) orderable: 4,8 Modules
 Primary Cache: 32 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 8 MB I+D on chip per core
 Other Cache: 16 MB I+D off chip per CDIMM
 Memory: 2 TB (64 x 32 GB CDIMMs) DDR3 1600 MHz
 Disk Subsystem: 7 x 300 GB 15K RPM SAS SFF-2 Raid5
 Other Hardware: None

Software

Operating System: IBM AIX V7.1
 Compiler: C/C++: Version 13.1 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	256	845	2960	844	2960	847	2950	256	714	3500	717	3490	715	3500
401.bzip2	256	810	3050	813	3040	811	3050	384	1082	3430	1086	3410	1081	3430
403.gcc	256	569	3620	567	3630	569	3620	448	792	4550	791	4560	789	4570
429.mcf	256	299	7800	298	7830	299	7800	384	436	8030	437	8020	435	8050
445.gobmk	256	715	3760	720	3730	721	3730	512	1244	4320	1244	4320	1242	4320
456.hammer	256	673	3550	669	3570	675	3540	256	388	6160	390	6120	387	6170
458.sjeng	256	866	3580	868	3570	870	3560	512	1611	3850	1609	3850	1608	3850
462.libquantum	256	498	10600	498	10700	498	10700	256	126	42100	125	42600	124	42600
464.h264ref	256	1242	4560	1242	4560	1247	4540	256	1187	4770	1189	4770	1185	4780
471.omnetpp	256	518	3090	519	3080	518	3090	512	830	3850	831	3850	829	3860
473.astar	256	528	3410	531	3380	532	3380	384	736	3660	739	3650	740	3640
483.xalanbmk	256	435	4060	435	4060	429	4110	448	649	4760	651	4750	649	4760

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

Compiler Invocation Notes

C/C++ compiler updated to September 2014 PTF
Version 13.01.0000.0001

Peak Tuning Notes

```

400.perlbench fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
401.bzip2 fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
403.gcc fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
429.mcf fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
456.hammer fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
458.sjeng fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
462.libquantum fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
464.h264ref fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
471.omnetpp fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
473.astar fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox
483.xalanbmk fdpr options: -O4 -m power8 -A 2 -rcl 2 -sls -dir -vrox

```

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).



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Operating System Notes

AIX updated to V7.1 TL3 SP4

All ulimits set to unlimited.

Set 8 threads per core via "smtctl -t 8 -w boot"

51200 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 = "intrinths=1"

Base Compiler Invocation

C benchmarks:

/opt/IBM/xlc/13.1.0/bin/xlc -qlanglvl=extc99

C++ benchmarks:

/opt/IBM/xlC/13.1.0/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:

-qinline=40 -qipa=threads -bmaxdata:0x50000000 -qlargepage -O5

-qvecnvml -D_ILS_MACROS -qalias=noansi -qalloca -blpdata

C++ benchmarks:

-qinline=40 -qipa=threads -bmaxdata:0x20000000 -qlargepage -O5

-qvecnvml -D_ILS_MACROS -qrtti=all -D__IBM_FAST_SET_MAP_ITERATOR

-blpdata



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Base Other Flags

C benchmarks:

-qipa=noobject -qsuppress=1500-036

C++ benchmarks:

-qipa=noobject -qsuppress=1500-036

Peak Compiler Invocation

C benchmarks:

/opt/IBM/xlc/13.1.0/bin/xlc -qlanglvl=extc99

C++ benchmarks:

/opt/IBM/xlc/13.1.0/bin/xlc

Peak Portability Flags

400.perlbench: -DSPEC_CPU_AIX
403.gcc: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_AIX
464.h264ref: -DSPEC_CPU_AIX -qchars=signed
483.xalancbmk: -DSPEC_CPU_AIX

Peak Optimization Flags

C benchmarks:

400.perlbench: -qinline=40 -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O3 -qarch=auto -qtune=auto -D_ILS_MACROS
-qalias=noansi -qfdpr -blpdata -btextpsize:64K
401.bzip2: -qinline=40 -qipa=threads -bmaxdata:0x50000000
-qpdf1(pass 1) -qpdf2(pass 2) -O4 -qsimd=noauto
-qlargepage -D_ILS_MACROS -qfdpr -blpdata -btextpsize:64K
403.gcc: -qinline=40 -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2)
-O4 -qvecnvml -q64 -qlargepage -D_ILS_MACROS -qalloca
-qfdpr -blpdata -btextpsize:64K
429.mcf: -qinline=40 -qipa=threads -bmaxdata:0x50000000
-qpdf1(pass 1) -qpdf2(pass 2) -O5 -qvecnvml -qlargepage
-D_ILS_MACROS -qfdpr -blpdata -btextpsize:64K
445.gobmk: -qinline=40 -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2)
-O5 -qvecnvml -qlargepage -D_ILS_MACROS -blpdata
-btextpsize:64K

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Peak Optimization Flags (Continued)

456.hmmcr: -qinline=40 -qipa=threads -O5 -qvecnv ol -qlargepage
-qassert=refalign -D_ILS_MACROS -qfdpr -blpdata
-btextpsize:64K

458.sjeng: -qinline=40 -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2)
-O3 -qarch=auto -qtune=auto -D_ILS_MACROS -qfdpr
-blpdata -btextpsize:64K

462.libquantum: -qinline=40 -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2)
-O5 -qsimd=noauto -qinline=400 -q64 -qlargepage
-D_ILS_MACROS -qfdpr -blpdata -btextpsize:64K

464.h264ref: -qinline=40 -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2)
-O5 -qvecnv ol -qprefetch=dscr=84 -D_ILS_MACROS -qfdpr
-blpdata -btextpsize:64K

C++ benchmarks:

471.omnetpp: -qinline=40 -qipa=threads -bmaxdata:0x20000000
-qpdf1(pass 1) -qpdf2(pass 2) -O5 -qsimd=noauto
-qarch=pwr7 -qtune=pwr7 -D_ILS_MACROS -qfdpr
-qalign=natural -qrtti=all -qinlglue
-D__IBM_FAST_SET_MAP_ITERATOR -blpdata -btextpsize:64K

473.astar: -qinline=40 -qipa=threads -bmaxdata:0x20000000
-qpdf1(pass 1) -qpdf2(pass 2) -O5 -qvecnv ol -qlargepage
-D_ILS_MACROS -qfdpr -qinlglue -qalign=natural -blpdata
-btextpsize:64K

483.xalancbmk: -qinline=40 -qipa=threads -bmaxdata:0x20000000
-qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=auto -qtune=auto
-qsimd -qvecnv ol -qlargepage -qprefetch=dscr=84
-D_ILS_MACROS -qfdpr -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

C++ benchmarks:

-qipa=noobject -qsuppress=1500-036



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/IBM-XL.V13.html>

<http://www.spec.org/cpu2006/flags/IBM-AIX.V7.html>

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

<http://www.spec.org/cpu2006/flags/IBM-XL.V13.xml>

<http://www.spec.org/cpu2006/flags/IBM-AIX.V7.xml>

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

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