



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 261

IBM Power S814 (3.026 GHz, 4 core)

SPECint_rate_base2006 = 199

CPU2006 license: 11

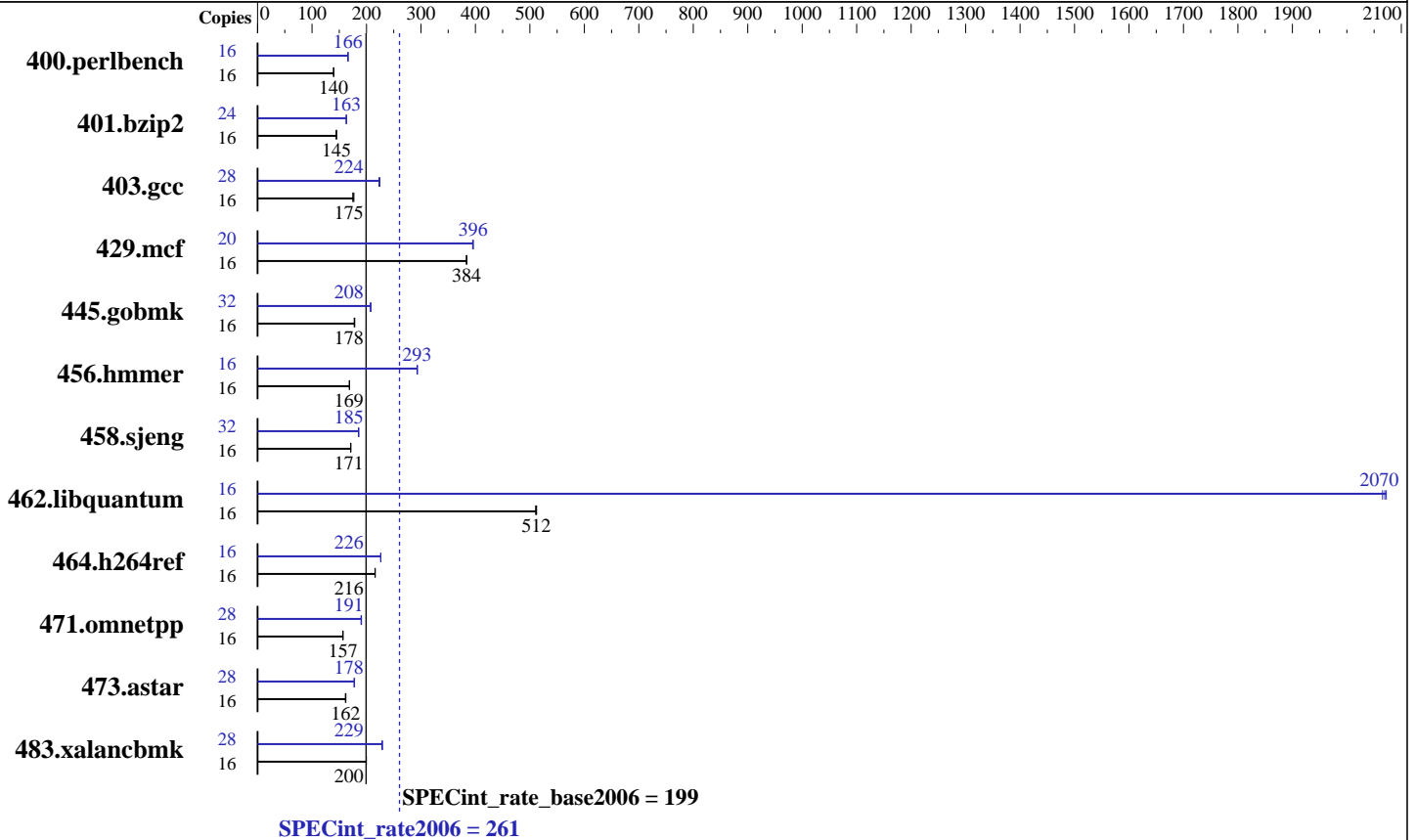
Test date: May-2015

Test sponsor: IBM Corporation

Hardware Availability: Jun-2014

Tested by: IBM Corporation

Software Availability: Sep-2014



Hardware

CPU Name: POWER8
 CPU Characteristics: Intelligent Energy Optimization enabled, up to 3.36 GHz
 CPU MHz: 3026
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip, 8 threads/core
 CPU(s) orderable: 1 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: 64 GB (4 x 16 GB CDIMMs) DDR3 1600 MHz
 Disk Subsystem: 5 x 300 GB 15K RPM SAS SFF-2 Raid0
 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	16	1118	140	1119	140	<u>1119</u>	<u>140</u>	16	940	166	942	166	<u>942</u>	<u>166</u>
401.bzip2	16	1068	145	1066	145	<u>1066</u>	<u>145</u>	24	1422	163	<u>1421</u>	<u>163</u>	1419	163
403.gcc	16	728	177	<u>735</u>	<u>175</u>	736	175	28	1011	223	1004	225	<u>1007</u>	<u>224</u>
429.mcf	16	380	384	380	384	<u>380</u>	<u>384</u>	20	461	396	<u>461</u>	<u>396</u>	462	395
445.gobmk	16	<u>942</u>	<u>178</u>	946	177	941	178	32	1618	207	1614	208	<u>1617</u>	<u>208</u>
456.hmmer	16	885	169	885	169	<u>885</u>	<u>169</u>	16	<u>509</u>	<u>293</u>	508	294	510	293
458.sjeng	16	1133	171	1131	171	<u>1132</u>	<u>171</u>	32	<u>2089</u>	<u>185</u>	2083	186	2089	185
462.libquantum	16	<u>647</u>	<u>512</u>	647	512	649	511	16	161	2070	<u>160</u>	<u>2070</u>	160	2070
464.h264ref	16	1641	216	1640	216	<u>1640</u>	<u>216</u>	16	1565	226	<u>1565</u>	<u>226</u>	1565	226
471.omnetpp	16	638	157	<u>638</u>	<u>157</u>	638	157	28	921	190	917	191	<u>918</u>	<u>191</u>
473.astar	16	693	162	696	161	<u>694</u>	<u>162</u>	28	1104	178	1110	177	<u>1106</u>	<u>178</u>
483.xalanbmk	16	553	200	<u>553</u>	<u>200</u>	553	200	28	<u>845</u>	<u>229</u>	845	229	843	229

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.hmmer 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"

3200 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 other inquiries, please contact webmaster@spec.org.

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