



SPEC® CINT2006 Result

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IBM Corporation

SPECint®2006 = 35.2

IBM System x3200 M3 (Intel Xeon X3470)

SPECint_base2006 = 30.9

CPU2006 license: 11

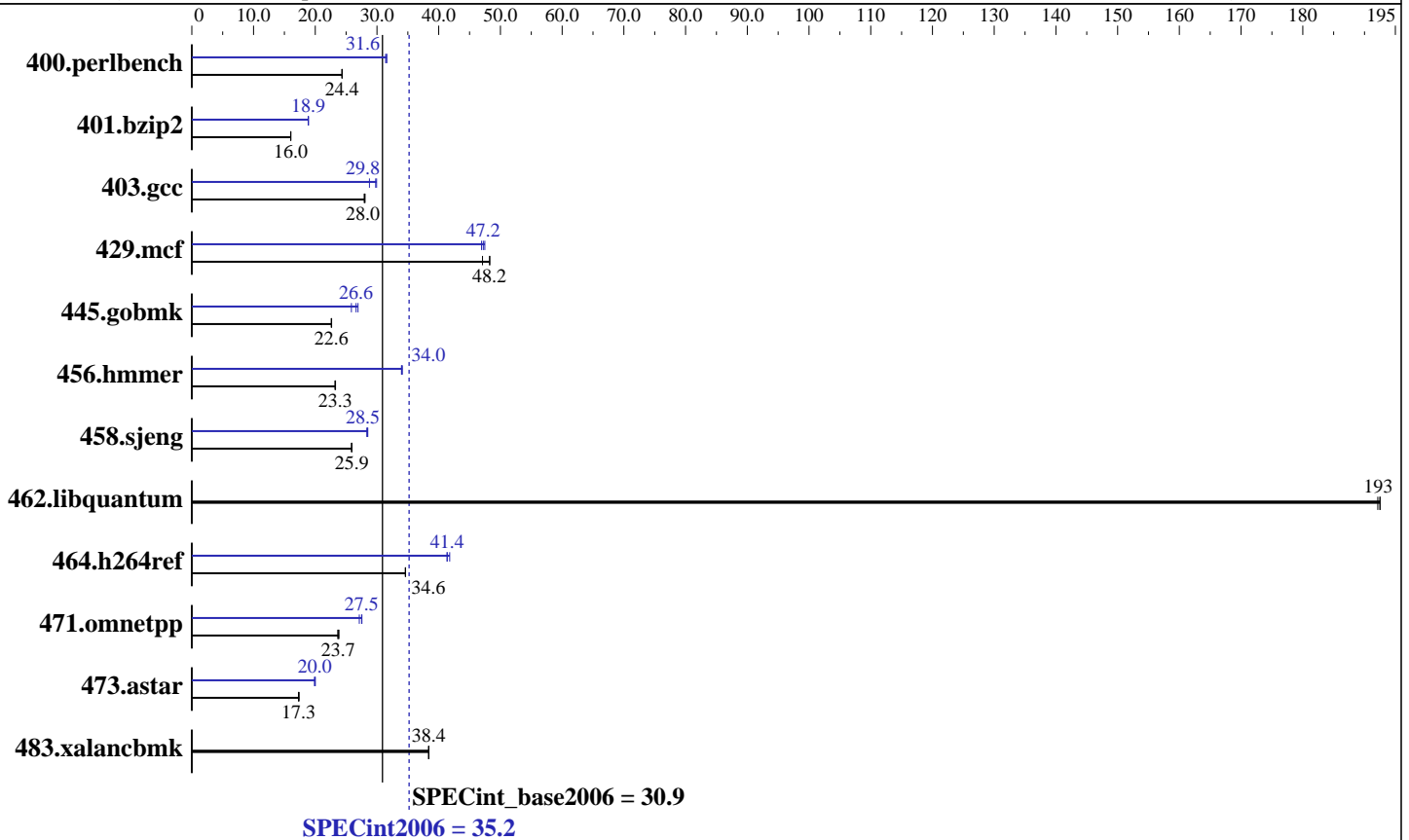
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Sep-2009

Hardware Availability: Oct-2009

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon X3470
 CPU Characteristics: Intel Turbo Boost Technology up to 3.6 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 16 GB(4 x 4 GB PC3-10600R)
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 11(x86_64), Kernel 2.6.27.19-5-default
 Compiler: Intel C++ Compiler Professional 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	402	24.3	401	24.4	<u>401</u>	<u>24.4</u>	<u>310</u>	<u>31.6</u>	309	31.6	311	31.4
401.bzip2	602	16.0	<u>602</u>	<u>16.0</u>	602	16.0	510	18.9	512	18.9	<u>512</u>	<u>18.9</u>
403.gcc	287	28.1	<u>288</u>	<u>28.0</u>	288	27.9	280	28.8	<u>270</u>	<u>29.8</u>	269	29.9
429.mcf	194	47.1	189	48.3	<u>189</u>	<u>48.2</u>	194	46.9	<u>193</u>	<u>47.2</u>	192	47.5
445.gobmk	464	22.6	<u>464</u>	<u>22.6</u>	463	22.7	406	25.9	390	26.9	<u>394</u>	<u>26.6</u>
456.hammer	401	23.3	402	23.2	<u>401</u>	<u>23.3</u>	274	34.1	<u>274</u>	<u>34.0</u>	275	34.0
458.sjeng	<u>467</u>	<u>25.9</u>	467	25.9	468	25.9	427	28.3	<u>425</u>	<u>28.5</u>	424	28.5
462.libquantum	<u>108</u>	<u>193</u>	108	193	108	192	<u>108</u>	<u>193</u>	108	193	108	192
464.h264ref	<u>639</u>	<u>34.6</u>	639	34.6	640	34.6	530	41.8	<u>535</u>	<u>41.4</u>	535	41.4
471.omnetpp	<u>263</u>	<u>23.7</u>	262	23.8	264	23.7	<u>227</u>	<u>27.5</u>	227	27.6	230	27.1
473.astar	<u>406</u>	<u>17.3</u>	406	17.3	404	17.4	351	20.0	<u>352</u>	<u>20.0</u>	353	19.9
483.xalancbmk	180	38.4	180	38.4	<u>180</u>	<u>38.4</u>	180	38.4	180	38.4	<u>180</u>	<u>38.4</u>

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

General Notes

CPU C-States Enable and Adjacent Sector Prefetch Enable

Turbo Mode Enable

OMP_NUM_THREADS set to number of cores

KMP_AFFINITY set to granularity=fine,scatter

Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32

462.libquantum: -DSPEC_CPU_LINUX

483.xalancbmk: -DSPEC_CPU_LINUX



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Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/lib -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/Compiler/11.0/080/bin/intel64/icc

456.hmmer: /opt/intel/Compiler/11.0/080/bin/intel64/icc

458.sjeng: /opt/intel/Compiler/11.0/080/bin/intel64/icc

C++ benchmarks (except as noted below):

icpc

473.astar: /opt/intel/Compiler/11.0/080/bin/intel64/icpc

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32

401.bzip2: -DSPEC_CPU_LP64

456.hmmer: -DSPEC_CPU_LP64

458.sjeng: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LINUX

473.astar: -DSPEC_CPU_LP64

483.xalancbmk: -DSPEC_CPU_LINUX



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Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -ansi-alias -opt-prefetch

401.bzp2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
-opt-malloc-options=3

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
-ipo -no-prec-div -ansi-alias

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2
-ansi-alias -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/spec/cpu2006.1.1/lib -lsmarheap

473.astar: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=routine -auto-ilp32
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmarheap64

483.xalancbmk: basepeak = yes



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Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20091002.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20091002.xml>

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

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Sep 23 18:32:58 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 October 2009.