



SPEC® CINT2006 Result

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IBM Corporation

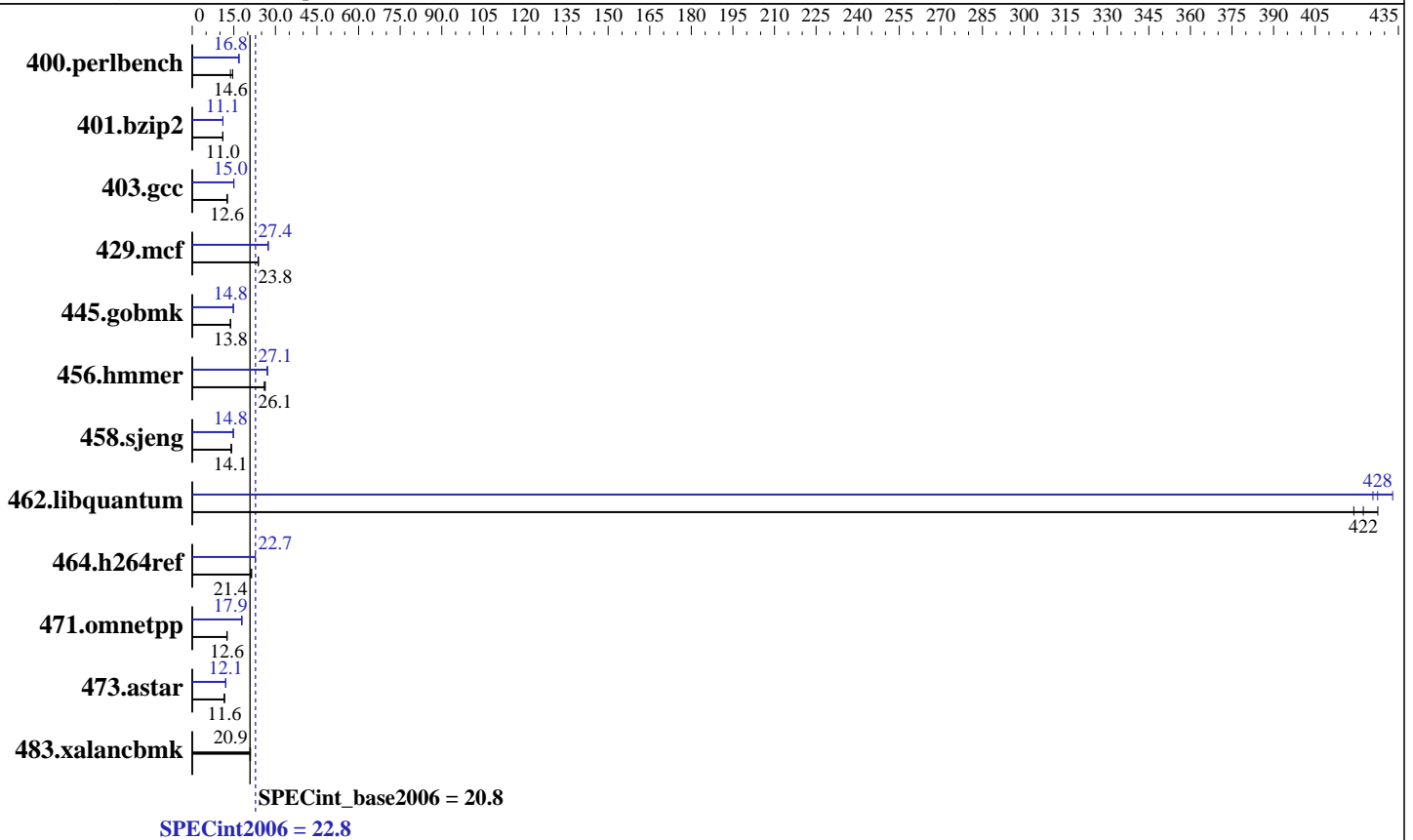
SPECint®2006 = 22.8

IBM System x3850 X5 (Intel Xeon E7520)

SPECint_base2006 = 20.8

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Apr-2010
Hardware Availability: Mar-2010
Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon E7520
 CPU Characteristics:
 CPU MHz: 1867
 FPU: Integrated
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 18 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (64 x 4 GB PC3-8500R, Quad Rank, running at 800 MHz)
 Disk Subsystem: 3 x 50 GB SATA, SSD
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.17.29-5-default
 Compiler: Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1
 Build 20091130 Package ID: l_cproc_p_11.1.064
 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	708	13.8	669	14.6	<u>671</u>	<u>14.6</u>	<u>580</u>	<u>16.8</u>	580	16.8	580	16.8
401.bzip2	874	11.0	<u>874</u>	<u>11.0</u>	874	11.0	872	11.1	872	11.1	<u>872</u>	<u>11.1</u>
403.gcc	636	12.7	640	12.6	<u>639</u>	<u>12.6</u>	<u>537</u>	<u>15.0</u>	536	15.0	537	15.0
429.mcf	<u>383</u>	<u>23.8</u>	383	23.8	383	23.8	<u>333</u>	<u>27.4</u>	334	27.3	333	27.4
445.gobmk	761	13.8	<u>760</u>	<u>13.8</u>	758	13.8	<u>707</u>	<u>14.8</u>	<u>707</u>	<u>14.8</u>	707	14.8
456.hammer	354	26.4	<u>357</u>	<u>26.1</u>	359	26.0	344	27.1	<u>344</u>	<u>27.1</u>	344	27.1
458.sjeng	861	14.1	<u>861</u>	<u>14.1</u>	853	14.2	<u>817</u>	<u>14.8</u>	816	14.8	817	14.8
462.libquantum	<u>49.1</u>	<u>422</u>	48.5	428	49.5	419	<u>48.5</u>	<u>428</u>	48.7	426	47.9	433
464.h264ref	1035	21.4	<u>1035</u>	<u>21.4</u>	1044	21.2	973	22.7	<u>974</u>	<u>22.7</u>	974	22.7
471.omnetpp	<u>498</u>	<u>12.6</u>	498	12.6	499	12.5	<u>350</u>	<u>17.9</u>	350	17.9	350	17.9
473.astar	605	11.6	<u>605</u>	<u>11.6</u>	605	11.6	<u>582</u>	<u>12.1</u>	580	12.1	582	12.1
483.xalancbmk	331	20.9	328	21.0	<u>330</u>	<u>20.9</u>	331	20.9	328	21.0	<u>330</u>	<u>20.9</u>

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

Platform Notes

Demand Scrub disabled

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64

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Base Portability Flags (Continued)

445.gobmk: -DSPEC_CPU_LP64
 456.hmmer: -DSPEC_CPU_LP64
 458.sjeng: -DSPEC_CPU_LP64
 462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
 464.h264ref: -DSPEC_CPU_LP64
 471.omnetpp: -DSPEC_CPU_LP64
 473.astar: -DSPEC_CPU_LP64
 483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32

429.mcf: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32



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Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

```

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.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
           -O3(pass 2) -no-prec-div -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 -auto-ilp32

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

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
                -opt-prefetch -par-schedule-static=32768 -ansi-alias

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/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap

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Peak Optimization Flags (Continued)

```
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 -Wl,-z,muldefs
          -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64
```

```
483.xalanbmk: basepeak = yes
```

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-ic11.1-linux64-revE.20100330.03.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.03.xml>

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

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