



SPEC® CINT2006 Result

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IBM Corporation

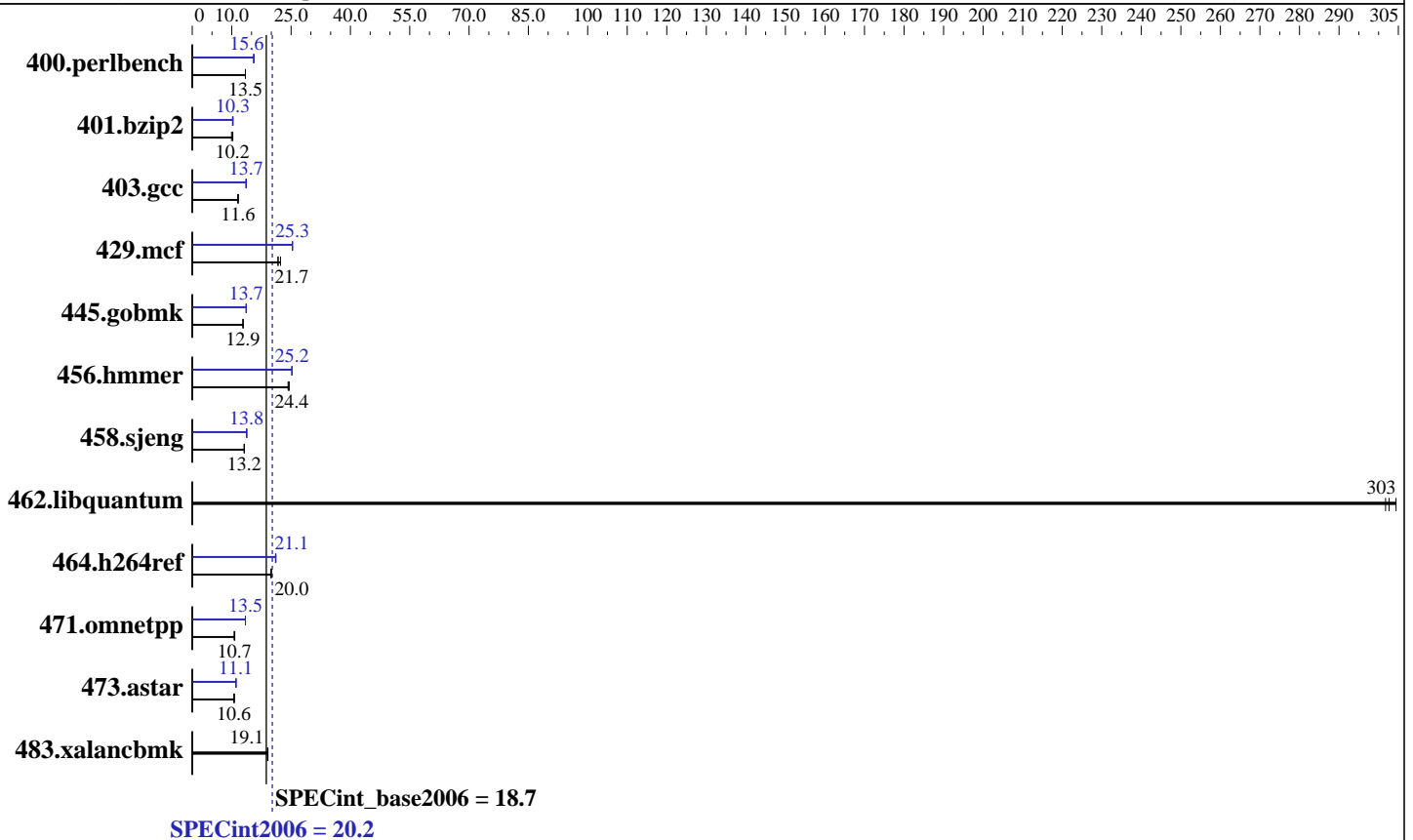
SPECint®2006 = 20.2

IBM BladeCenter HX5 (Intel Xeon E6510)

SPECint_base2006 = 18.7

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

Test date: Sep-2010
Hardware Availability: Jun-2010
Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon E6510
 CPU Characteristics:
 CPU MHz: 1733
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 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: 12 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (16 x 8 GB PC3-8500R CL7, Quad Rank, running at 800 MHz)
 Disk Subsystem: 2 x 50 GB SATA, SSD, RAID 0
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-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: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V8.1



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	726	13.5	727	13.4	<u>726</u>	<u>13.5</u>	630	15.5	626	15.6	<u>628</u>	<u>15.6</u>
401.bzip2	<u>947</u>	<u>10.2</u>	971	9.93	940	10.3	<u>939</u>	<u>10.3</u>	947	10.2	934	10.3
403.gcc	690	11.7	699	11.5	<u>696</u>	<u>11.6</u>	589	13.7	<u>589</u>	<u>13.7</u>	593	13.6
429.mcf	409	22.3	421	21.7	<u>420</u>	<u>21.7</u>	360	25.3	360	25.4	<u>360</u>	<u>25.3</u>
445.gobmk	<u>816</u>	<u>12.9</u>	818	12.8	815	12.9	770	13.6	<u>768</u>	<u>13.7</u>	767	13.7
456.hammer	<u>382</u>	<u>24.4</u>	385	24.2	381	24.5	370	25.2	370	25.2	<u>370</u>	<u>25.2</u>
458.sjeng	<u>919</u>	<u>13.2</u>	922	13.1	918	13.2	<u>880</u>	<u>13.8</u>	880	13.7	876	13.8
462.libquantum	68.7	302	<u>68.5</u>	<u>303</u>	68.1	304	68.7	302	<u>68.5</u>	<u>303</u>	68.1	304
464.h264ref	1112	19.9	<u>1107</u>	<u>20.0</u>	1107	20.0	1046	21.2	<u>1047</u>	<u>21.1</u>	1052	21.0
471.omnetpp	581	10.8	<u>582</u>	<u>10.7</u>	591	10.6	464	13.5	<u>465</u>	<u>13.5</u>	465	13.4
473.astar	658	10.7	666	10.5	<u>664</u>	<u>10.6</u>	632	11.1	<u>635</u>	<u>11.1</u>	637	11.0
483.xalancbmk	362	19.1	<u>362</u>	<u>19.1</u>	360	19.1	362	19.1	<u>362</u>	<u>19.1</u>	360	19.1

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

Operating System Notes

```
echo 1 > /proc/sys/vm/zone_reclaim_mode
```

General Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
```

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
```

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Base Portability Flags (Continued)

429.mcf: -DSPEC_CPU_LP64
 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-alloc
 -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: 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/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.xalancbmk: 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.20100929.00.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.20100929.00.xml>

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