



SPEC® CINT2006 Result

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IBM Corporation

SPECint®2006 = 19.3

IBM BladeCenter HS21 XM (Intel Xeon E5405)

SPECint_base2006 = 16.8

CPU2006 license: 11

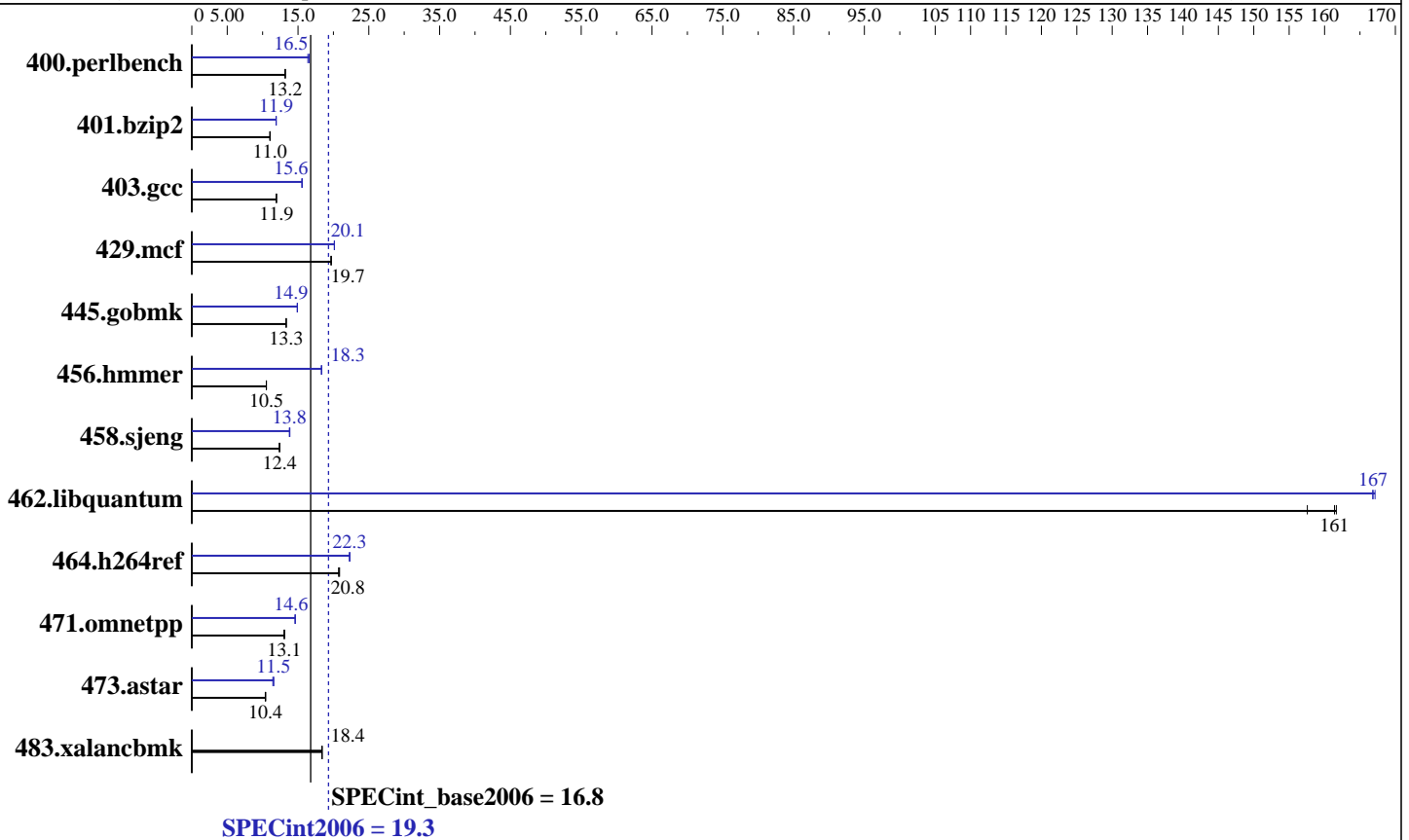
Test date: Dec-2007

Test sponsor: IBM Corporation

Hardware Availability: Jan-2008

Tested by: IBM Corporation

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5405
 CPU Characteristics: 1333MHz system bus
 CPU MHz: 1995
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 CPU(s) orderable: 1,2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores
 L3 Cache: None
 Other Cache: None
 Memory: 16 GB (8 x 2 GB DDR2-5300F ECC)
 Disk Subsystem: 1 x 36 GB SAS, 10000 RPM
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 10 (x86_64), Kernel 2.6.16.21-0.8-smp
 Compiler: Intel C++ Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Multi-user, run level 3
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: MicroQuill SmartHeap 8.1 Binutils 2.17.50.0.15



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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 740 | 13.2 | 740 | 13.2 | 742 | 13.2 | 589 | 16.6 | 591 | 16.5 | 596 | 16.4 |
| 401.bzip2 | 873 | 11.0 | 875 | 11.0 | 873 | 11.1 | 809 | 11.9 | 811 | 11.9 | 810 | 11.9 |
| 403.gcc | 674 | 11.9 | 675 | 11.9 | 673 | 12.0 | 516 | 15.6 | 518 | 15.5 | 517 | 15.6 |
| 429.mcf | 464 | 19.6 | 463 | 19.7 | 463 | 19.7 | 453 | 20.1 | 453 | 20.1 | 453 | 20.1 |
| 445.gobmk | 787 | 13.3 | 787 | 13.3 | 787 | 13.3 | 704 | 14.9 | 704 | 14.9 | 704 | 14.9 |
| 456.hmmmer | 886 | 10.5 | 887 | 10.5 | 886 | 10.5 | 509 | 18.3 | 509 | 18.3 | 509 | 18.3 |
| 458.sjeng | 975 | 12.4 | 980 | 12.3 | 976 | 12.4 | 874 | 13.9 | 878 | 13.8 | 876 | 13.8 |
| 462.libquantum | 132 | 158 | 128 | 161 | 128 | 162 | 124 | 167 | 124 | 167 | 124 | 167 |
| 464.h264ref | 1067 | 20.7 | 1065 | 20.8 | 1060 | 20.9 | 992 | 22.3 | 994 | 22.3 | 992 | 22.3 |
| 471.omnetpp | 477 | 13.1 | 478 | 13.1 | 480 | 13.0 | 428 | 14.6 | 428 | 14.6 | 428 | 14.6 |
| 473.astar | 672 | 10.4 | 675 | 10.4 | 677 | 10.4 | 609 | 11.5 | 606 | 11.6 | 613 | 11.4 |
| 483.xalancbmk | 375 | 18.4 | 375 | 18.4 | 375 | 18.4 | 375 | 18.4 | 375 | 18.4 | 375 | 18.4 |

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

General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmmer, for peak, are compiled in 64-bit mode
Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Enabled
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to null

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:

-fast -vec-guard-write -parallel -par-runtime-control

C++ benchmarks:

-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/spec/users/rahul/cpu2006.1.0/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/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:

icpc

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

Continued on next page



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Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias
-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-auto-ilp32

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

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

456.hmmr: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive
-auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch
-opt-streaming-stores always -vec-guard-write
-opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo
-no-prec-div -ansi-alias -opt-ra-region-strategy=block
-Wl,-z,muldefs
-L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine
-Wl,-z,muldefs
-L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca



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

<http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090714.14.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090714.14.xml>

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