



SPEC[®] CINT2006 Result

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IBM Corporation

SPECint[®]2006 = 25.3

IBM System x3550 (Intel Xeon E5440)

SPECint_base2006 = 22.0

CPU2006 license: 11

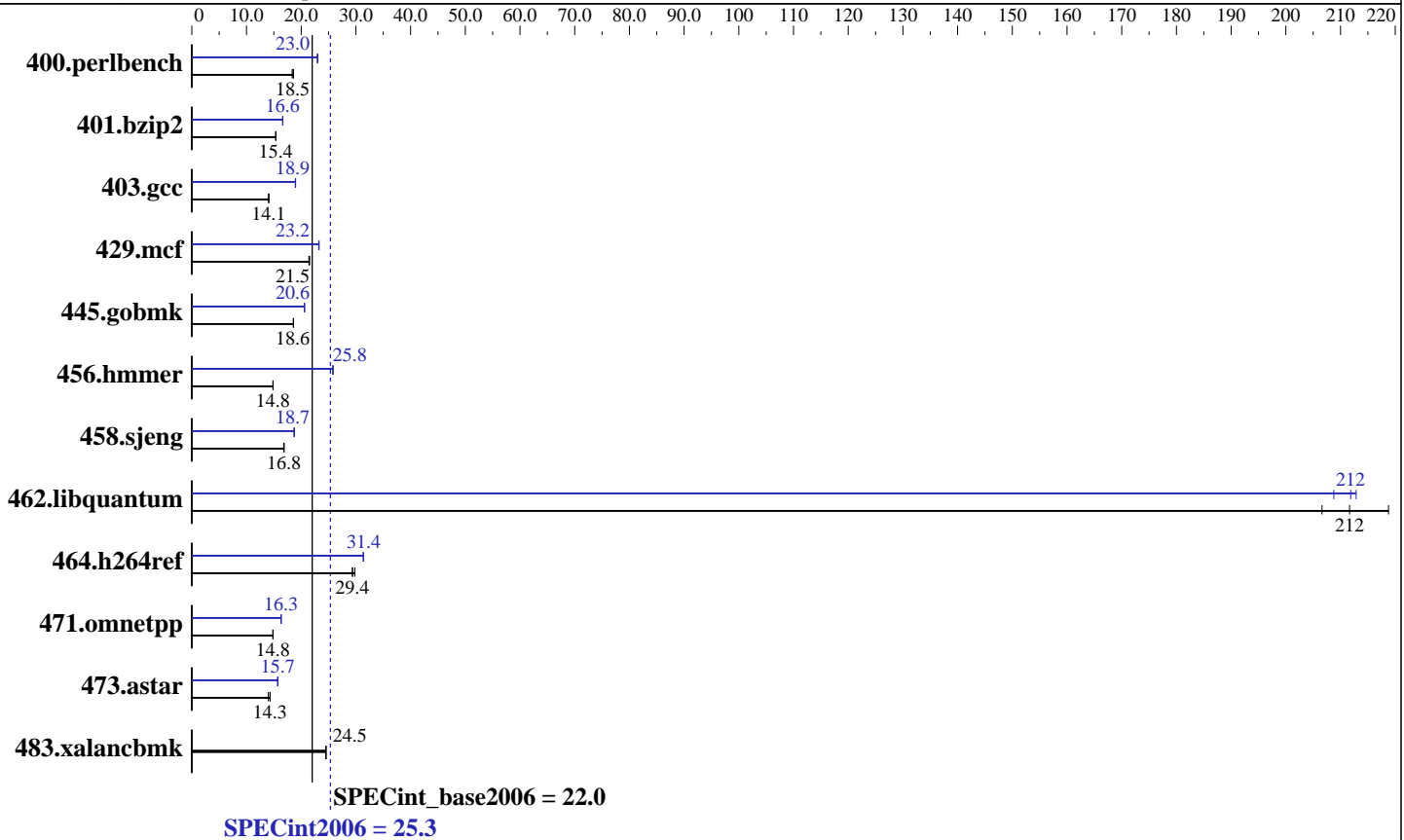
Test date: Dec-2007

Test sponsor: IBM Corporation

Hardware Availability: Jan-2008

Tested by: IBM Corporation

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5440
 CPU Characteristics: 1333MHz system bus
 CPU MHz: 2833
 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, 15000 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 | 533 | 18.3 | 525 | 18.6 | <u>528</u> | <u>18.5</u> | <u>425</u> | <u>23.0</u> | 425 | 23.0 | 426 | 23.0 |
| 401.bzip2 | 627 | 15.4 | 629 | 15.3 | <u>628</u> | <u>15.4</u> | 581 | 16.6 | <u>580</u> | <u>16.6</u> | 580 | 16.7 |
| 403.gcc | <u>572</u> | <u>14.1</u> | 572 | 14.1 | 573 | 14.0 | 425 | 18.9 | 424 | 19.0 | <u>425</u> | <u>18.9</u> |
| 429.mcf | 426 | 21.4 | 423 | 21.5 | <u>425</u> | <u>21.5</u> | <u>392</u> | <u>23.2</u> | 392 | 23.3 | 393 | 23.2 |
| 445.gobmk | 565 | 18.6 | 564 | 18.6 | <u>564</u> | <u>18.6</u> | <u>509</u> | <u>20.6</u> | 509 | 20.6 | 509 | 20.6 |
| 456.hmmmer | 628 | 14.9 | 629 | 14.8 | <u>628</u> | <u>14.8</u> | <u>362</u> | <u>25.8</u> | 362 | 25.8 | 361 | 25.8 |
| 458.sjeng | 716 | 16.9 | <u>719</u> | <u>16.8</u> | 720 | 16.8 | 646 | 18.7 | 647 | 18.7 | <u>646</u> | <u>18.7</u> |
| 462.libquantum | 100 | 207 | 94.7 | 219 | <u>97.9</u> | <u>212</u> | 99.2 | 209 | <u>97.8</u> | <u>212</u> | 97.3 | 213 |
| 464.h264ref | 743 | 29.8 | <u>753</u> | <u>29.4</u> | 754 | 29.3 | 704 | 31.4 | 707 | 31.3 | <u>704</u> | <u>31.4</u> |
| 471.omnetpp | <u>421</u> | <u>14.8</u> | 422 | 14.8 | 421 | 14.9 | 382 | 16.4 | <u>383</u> | <u>16.3</u> | 384 | 16.3 |
| 473.astar | <u>491</u> | <u>14.3</u> | 491 | 14.3 | 502 | 14.0 | <u>447</u> | <u>15.7</u> | 447 | 15.7 | 446 | 15.7 |
| 483.xalancbmk | 281 | 24.5 | 282 | 24.5 | <u>281</u> | <u>24.5</u> | 281 | 24.5 | 282 | 24.5 | <u>281</u> | <u>24.5</u> |

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
Powersaved dameon was disabled in OS

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 -lsmarheap

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

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