



SPEC[®] CINT2006 Result

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IBM Corporation

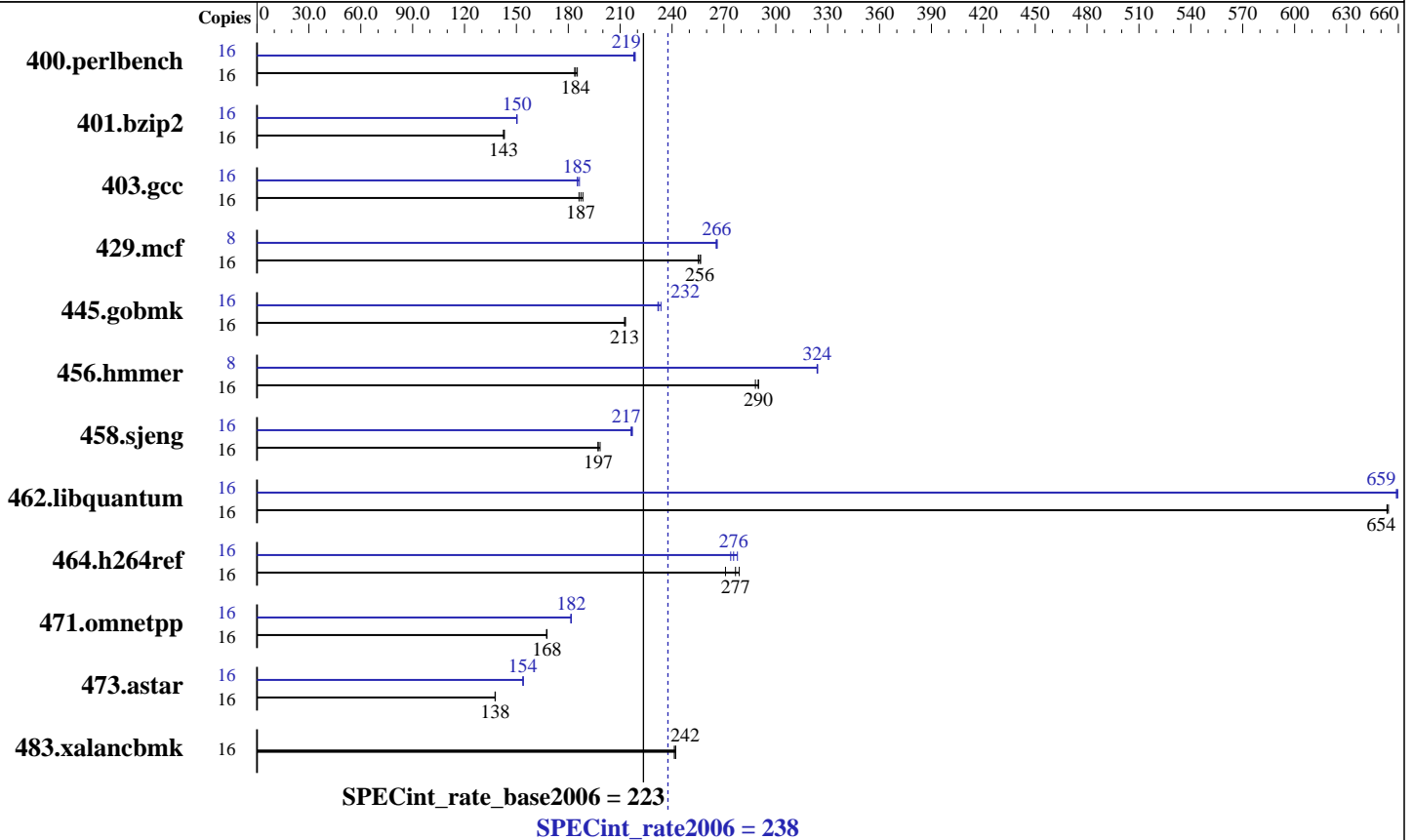
SPECint[®]_rate2006 = 238

IBM System x3630 M3 (Intel Xeon E5640)

SPECint_rate_base2006 = 223

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

Test date: Oct-2010
Hardware Availability: Oct-2010
Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon E5640
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz
 CPU MHz: 2667
 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: 48 GB (12 x 4 GB 2Rx4 PC3-10600R, ECC, running at 1066 MHz and CL7)
 Disk Subsystem: 1 x 146 GB SAS, 15000 RPM
 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: No
 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



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Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|----------------|--------|------------|------------|-------------|------------|-------------|------------|--------|-------------|------------|------------|------------|-------------|------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 16 | 844 | 185 | 851 | 184 | 848 | 184 | 16 | 717 | 218 | 715 | 219 | 715 | 219 |
| 401.bzip2 | 16 | 1079 | 143 | 1083 | 143 | 1082 | 143 | 16 | 1028 | 150 | 1027 | 150 | 1028 | 150 |
| 403.gcc | 16 | 688 | 187 | 692 | 186 | 684 | 188 | 16 | 691 | 186 | 695 | 185 | 695 | 185 |
| 429.mcf | 16 | 569 | 257 | 570 | 256 | 572 | 255 | 8 | 274 | 266 | 275 | 265 | 274 | 266 |
| 445.gobmk | 16 | 789 | 213 | 789 | 213 | 788 | 213 | 16 | 723 | 232 | 724 | 232 | 719 | 234 |
| 456.hammer | 16 | 518 | 288 | 515 | 290 | 515 | 290 | 8 | 230 | 324 | 230 | 324 | 230 | 324 |
| 458.sjeng | 16 | 981 | 197 | 982 | 197 | 976 | 198 | 16 | 895 | 216 | 892 | 217 | 893 | 217 |
| 462.libquantum | 16 | 507 | 654 | 507 | 653 | 507 | 654 | 16 | 503 | 659 | 503 | 659 | 503 | 660 |
| 464.h264ref | 16 | 1270 | 279 | 1280 | 277 | 1307 | 271 | 16 | 1275 | 278 | 1293 | 274 | 1285 | 276 |
| 471.omnetpp | 16 | 597 | 167 | 597 | 168 | 596 | 168 | 16 | 550 | 182 | 550 | 182 | 551 | 181 |
| 473.astar | 16 | 815 | 138 | 816 | 138 | 815 | 138 | 16 | 730 | 154 | 730 | 154 | 730 | 154 |
| 483.xalancbmk | 16 | 456 | 242 | 458 | 241 | 456 | 242 | 16 | 456 | 242 | 458 | 241 | 456 | 242 |

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

Submit Notes

The config file option 'submit' was used.
numactl was used to bind copies to the cores

Platform Notes

BIOS Settings:
Turbo Mode Enable
Turbo Boost set to Traditional
CPU C State Enable
Data Reuse Disable

General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

Base Compiler Invocation

C benchmarks:
icc -m32

C++ benchmarks:
icpc -m32



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Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -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/libic11.1-32bit -lsmarheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

462.libquantum: icc -m64

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

456.hmmcr: -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_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

401.bzip2: -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) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static

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.hmmcr: -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: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
 -opt-prefetch

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

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

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Peak Optimization Flags (Continued)

473.astar (continued):

-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.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.xml>

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

Tested with SPEC CPU2006 v1.1.

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