



SPEC® CINT2006 Result

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IBM Corporation

SPECint®2006 = 12.5

IBM System x3655 (AMD Opteron 2220)

SPECint_base2006 = 11.2

CPU2006 license: 11

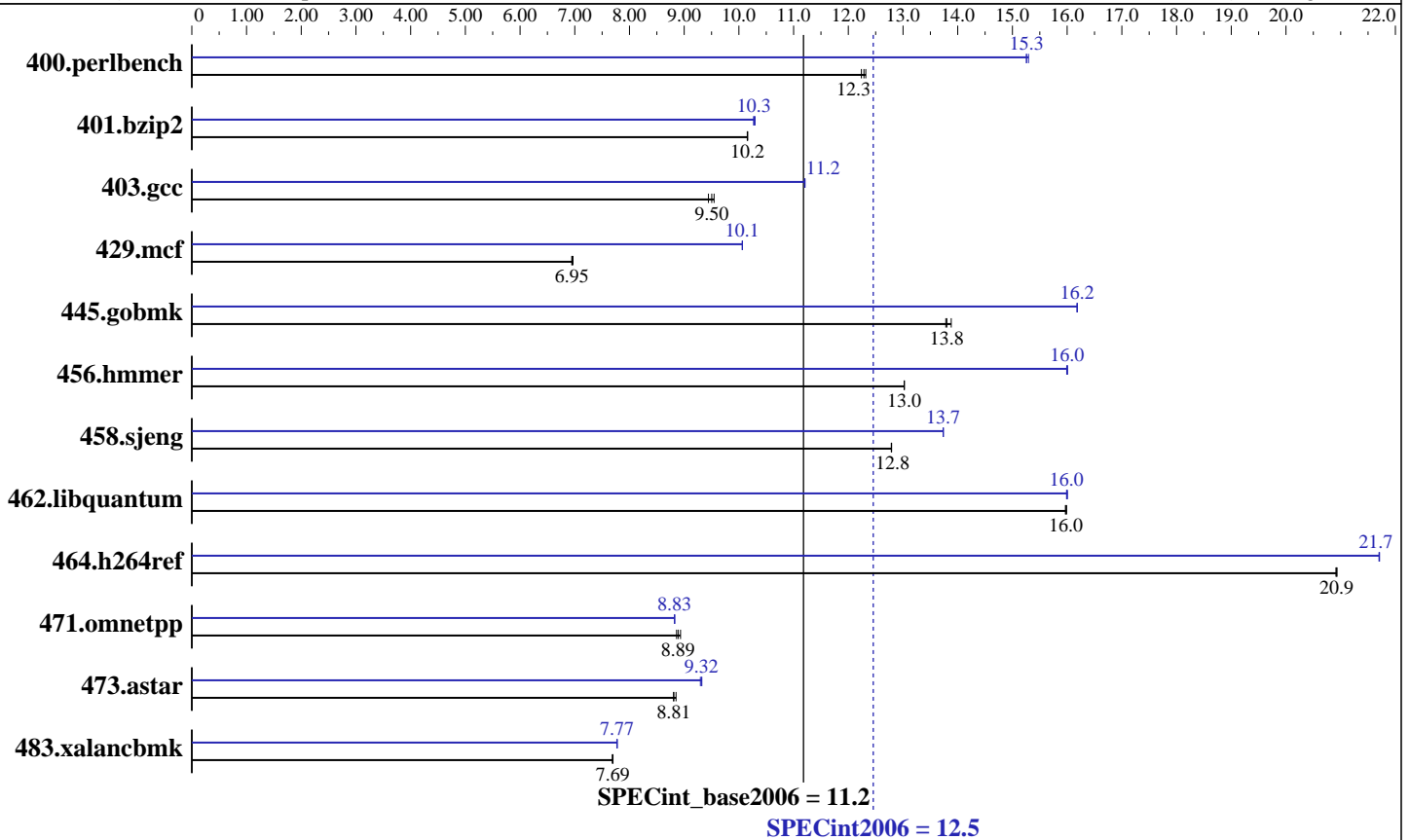
Test date: Feb-2007

Test sponsor: IBM Corporation

Hardware Availability: Apr-2007

Tested by: IBM Corporation

Software Availability: Aug-2006



Hardware

CPU Name: AMD Opteron 2220
 CPU Characteristics:
 CPU MHz: 2800
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
 CPU(s) orderable: 1, 2 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core
 L3 Cache: None
 Other Cache: None
 Memory: 16 GB (8 x 2GB DDR2-5300 ECC)
 Disk Subsystem: 1 x 74 GB SAS, 15000 RPM
 Other Hardware: None

Software

Operating System: SLES9 SP3 for AMD64/EM64T
 Compiler: QLogic PathScale Compiler Suite 2.5
 Auto Parallel: No
 File System: ext3
 System State: Multi-user, run level 3
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None



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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 793 | 12.3 | <u>795</u> | <u>12.3</u> | 798 | 12.2 | 639 | 15.3 | 640 | 15.3 | <u>640</u> | <u>15.3</u> |
| 401.bzip2 | 950 | 10.2 | 950 | 10.2 | <u>950</u> | <u>10.2</u> | 937 | 10.3 | 940 | 10.3 | <u>939</u> | <u>10.3</u> |
| 403.gcc | 843 | 9.55 | <u>847</u> | <u>9.50</u> | 852 | 9.44 | 718 | 11.2 | 719 | 11.2 | <u>719</u> | <u>11.2</u> |
| 429.mcf | 1309 | 6.97 | <u>1312</u> | <u>6.95</u> | 1313 | 6.95 | 906 | 10.1 | <u>906</u> | <u>10.1</u> | 906 | 10.1 |
| 445.gobmk | <u>760</u> | <u>13.8</u> | 756 | 13.9 | 761 | 13.8 | 648 | 16.2 | 648 | 16.2 | <u>648</u> | <u>16.2</u> |
| 456.hmmer | 716 | 13.0 | 717 | 13.0 | <u>716</u> | <u>13.0</u> | <u>583</u> | <u>16.0</u> | 583 | 16.0 | 583 | 16.0 |
| 458.sjeng | 946 | 12.8 | <u>946</u> | <u>12.8</u> | 946 | 12.8 | <u>881</u> | <u>13.7</u> | 881 | 13.7 | 881 | 13.7 |
| 462.libquantum | 1298 | 16.0 | <u>1297</u> | <u>16.0</u> | 1296 | 16.0 | 1296 | 16.0 | 1294 | 16.0 | <u>1296</u> | <u>16.0</u> |
| 464.h264ref | 1057 | 20.9 | 1058 | 20.9 | <u>1058</u> | <u>20.9</u> | 1019 | 21.7 | 1020 | 21.7 | <u>1020</u> | <u>21.7</u> |
| 471.omnetpp | 700 | 8.93 | <u>703</u> | <u>8.89</u> | 705 | 8.86 | <u>708</u> | <u>8.83</u> | 708 | 8.83 | 708 | 8.82 |
| 473.astar | 793 | 8.85 | 797 | 8.81 | <u>797</u> | <u>8.81</u> | 755 | 9.30 | <u>754</u> | <u>9.32</u> | 753 | 9.32 |
| 483.xalancbmk | 896 | 7.70 | <u>897</u> | <u>7.69</u> | 898 | 7.69 | 887 | 7.78 | <u>888</u> | <u>7.77</u> | 888 | 7.77 |

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

Operating System Notes

taskset utility used to bind CPU(s) to processes

Base Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
pathCC

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
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
483.xalancbmk: -DSPEC_CPU_LINUX



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Base Optimization Flags

C benchmarks:
-march=auto -Ofast

C++ benchmarks:
-march=auto -Ofast -m32

Base Other Flags

C benchmarks:
-IPA:max_jobs=2

C++ benchmarks:
-IPA:max_jobs=2

Peak Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
pathCC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
400.perlbench: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

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Peak Optimization Flags (Continued)

401.bzip2: -march=auto -O3 -LNO:ou_prod_max=10 -OPT:Ofast
-OPT:alias=disjoint

403.gcc: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -m32 -O3 -OPT:Ofast

429.mcf: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -m32 -O2 -ipa

445.gobmk: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint -LNO:simd=0
-LNO:minvariant=off -WOPT:retype_expr=on

456.hmmr: -march=auto -O2 -OPT:alias=disjoint -WOPT:aggstr=0
-CG:cflow=0

458.sjeng: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -IPA:plimit=50000
-IPA:pu_reorder=2

462.libquantum: -march=auto -O3 -ipa -CG:local_fwd_sched=on
-IPA:space=1000

464.h264ref: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -IPA:plimit=20000
-OPT:alias=disjoint -LNO:prefetch=0

C++ benchmarks:

471.omnetpp: -march=auto -Ofast -IPA:pu_reorder=2 -CG:gcm=off -m32

473.astar: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

483.xalancbmk: -march=auto -Ofast -m32 -OPT:unroll_times_max=8

Peak Other Flags

C benchmarks:

-IPA:max_jobs=2

C++ benchmarks:

-IPA:max_jobs=2

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.html



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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.xml

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