



SPEC® CINT2006 Result

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IBM Corporation

SPECint®2006 = 12.2

IBM System x3455 (AMD Opteron 2216)

SPECint_base2006 = 11.1

CPU2006 license: 11

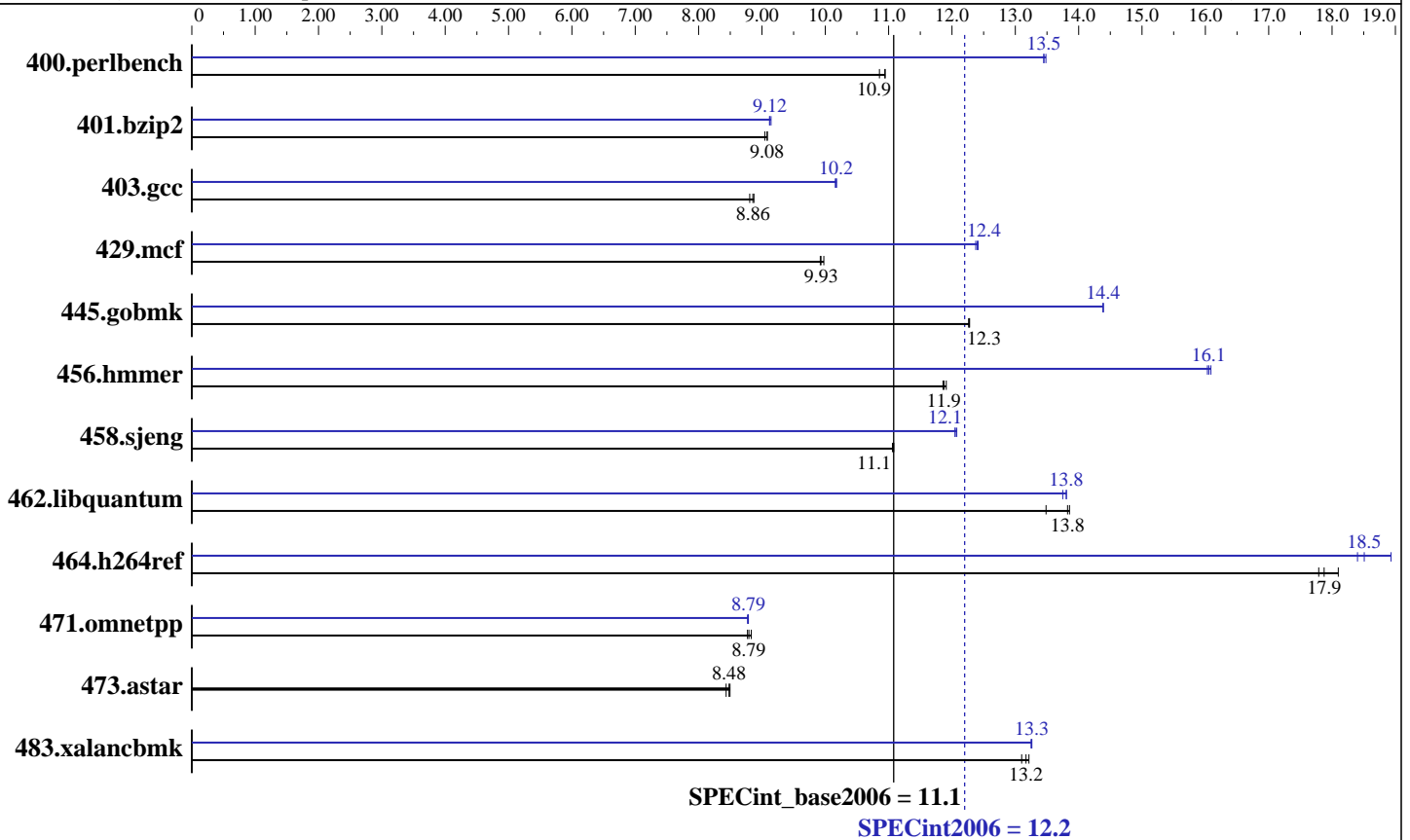
Test date: Aug-2007

Test sponsor: IBM Corporation

Hardware Availability: Oct-2006

Tested by: IBM Corporation

Software Availability: Mar-2007



Hardware

CPU Name: AMD Opteron 2216
 CPU Characteristics:
 CPU MHz: 2400
 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 160 GB Serial ATA, 7200 RPM
 Other Hardware: None

Software

Operating System: SLES 10 (x86_64), 2.6.16.21-0.8-smp
 Compiler: QLogic PathScale Compiler Suite, Release 3.0
 Auto Parallel: No
 File System: ext3
 System State: Multi-user, run level 3
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: MicroQuill SmartHeap 8.1



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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|-------------|-------------|------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 900 | 10.9 | 893 | 10.9 | 893 | 10.9 | 726 | 13.4 | 726 | 13.5 | 725 | 13.5 |
| 401.bzip2 | 1067 | 9.05 | 1062 | 9.09 | 1063 | 9.08 | 1055 | 9.14 | 1058 | 9.12 | 1058 | 9.12 |
| 403.gcc | 907 | 8.87 | 909 | 8.86 | 914 | 8.81 | 791 | 10.2 | 792 | 10.2 | 793 | 10.2 |
| 429.mcf | 914 | 9.98 | 918 | 9.93 | 919 | 9.92 | 735 | 12.4 | 736 | 12.4 | 737 | 12.4 |
| 445.gobmk | 854 | 12.3 | 855 | 12.3 | 855 | 12.3 | 729 | 14.4 | 729 | 14.4 | 729 | 14.4 |
| 456.hmmmer | 783 | 11.9 | 786 | 11.9 | 787 | 11.9 | 582 | 16.0 | 581 | 16.1 | 580 | 16.1 |
| 458.sjeng | 1092 | 11.1 | 1092 | 11.1 | 1094 | 11.1 | 1002 | 12.1 | 1004 | 12.0 | 1004 | 12.1 |
| 462.libquantum | 1536 | 13.5 | 1495 | 13.9 | 1499 | 13.8 | 1507 | 13.7 | 1501 | 13.8 | 1501 | 13.8 |
| 464.h264ref | 1238 | 17.9 | 1223 | 18.1 | 1244 | 17.8 | 1169 | 18.9 | 1203 | 18.4 | 1196 | 18.5 |
| 471.omnetpp | 708 | 8.83 | 711 | 8.79 | 712 | 8.77 | 711 | 8.79 | 711 | 8.79 | 712 | 8.77 |
| 473.astar | 826 | 8.50 | 828 | 8.48 | 832 | 8.43 | 826 | 8.50 | 828 | 8.48 | 832 | 8.43 |
| 483.xalancbmk | 522 | 13.2 | 524 | 13.2 | 527 | 13.1 | 520 | 13.3 | 520 | 13.3 | 521 | 13.2 |

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

General 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.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

```



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Base Optimization Flags

C benchmarks:

-Ofast -OPT:malloc_alg=1

C++ benchmarks:

-Ofast -m32 -L/tools/SmartHeap_8.1/lib -lsmartheap

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
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.xalanbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:opt=0

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

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Peak Optimization Flags (Continued)

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

429.mcf: -m32 -O3 -ipa -L/tools/SmartHeap_8.1/lib -lsmartheap

445.gobmk: -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: -O2 -OPT:alias=disjoint -OPT:malloc_alg=1 -CG:cflow=0

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

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

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

C++ benchmarks:

471.omnetpp: -Ofast -CG:gcm=off -m32
-L/tools/SmartHeap_8.1/lib -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -Ofast -m32 -OPT:unroll_times_max=8
-L/tools/SmartHeap_8.1/lib -lsmartheap

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.20090714.13.html

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.xml



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