



SPEC® CINT2006 Result

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Dell Inc.

SPECint®_rate2006 = 38.3

PowerEdge 2970 (AMD Opteron 2210, 1.80 GHz)

SPECint_rate_base2006 = 35.6

CPU2006 license: 55

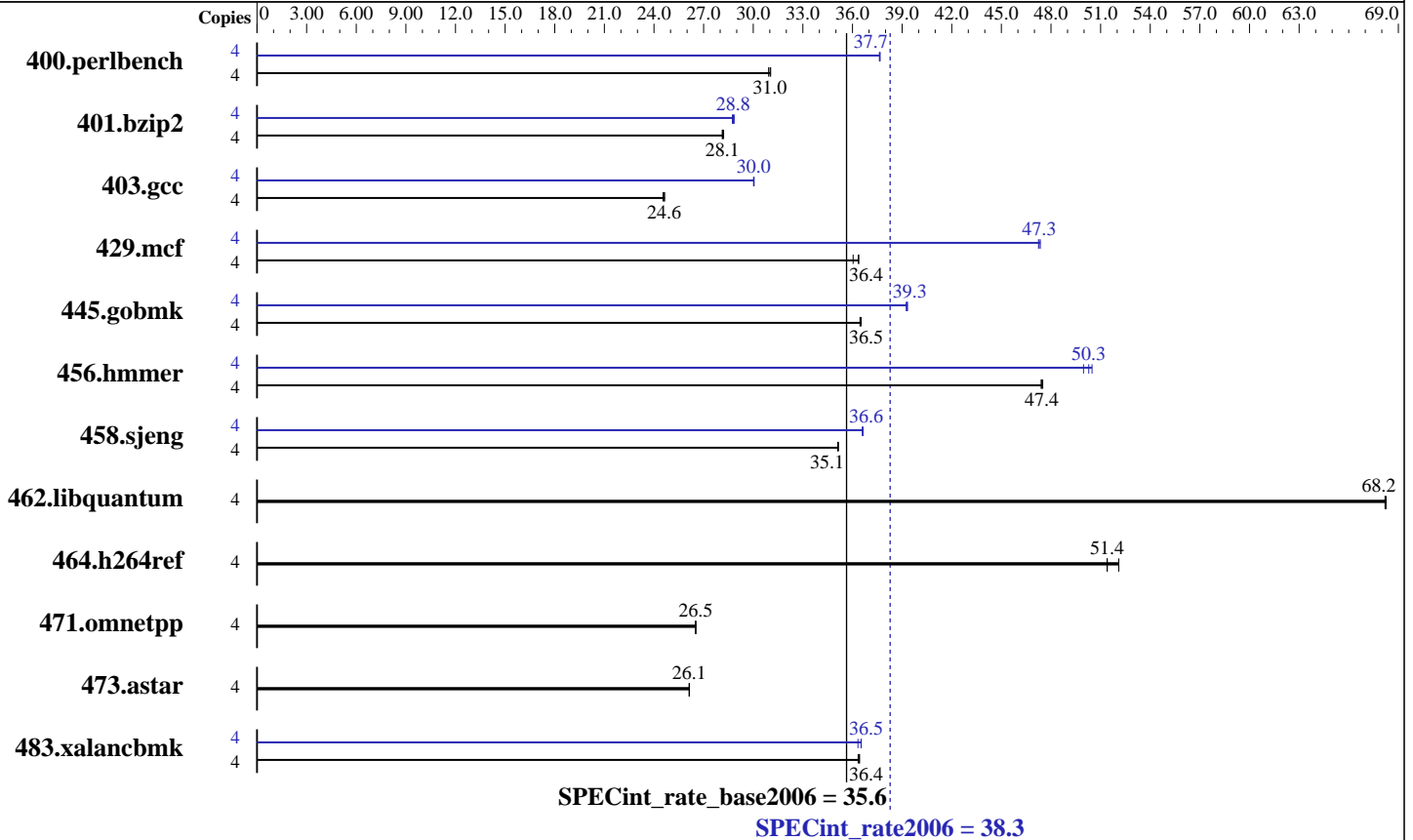
Test date: Sep-2007

Test sponsor: Dell Inc.

Hardware Availability: Apr-2007

Tested by: Dell Inc.

Software Availability: Oct-2007



Hardware

CPU Name: AMD Opteron 2210
 CPU Characteristics: 1800
 CPU MHz: 1800
 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 (8x2GB, DDR2-667 CL5 ECC Dual Rank)
 Disk Subsystem: 1 x 73 GB SAS 10k RPM
 Other Hardware: None

Software

Operating System: 64-Bit SUSE LINUX Enterprise Server 10 SP1
 Compiler: The Portland Group (PGI)
 PGI pgcc 7.1-0 C Compiler
 PGI pgCC 7.1-0 C++ Compiler
 Auto Parallel: No
 File System: ReiserFS
 System State: Multi-user, run level 3
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: SmartHeap 8.0 32-bit Library for Linux



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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	4	1264	30.9	1259	31.1	1260	31.0	4	1038	37.7	1038	37.7	1039	37.6
401.bzip2	4	1372	28.1	1372	28.1	1368	28.2	4	1338	28.8	1340	28.8	1343	28.7
403.gcc	4	1308	24.6	1307	24.6	1312	24.5	4	1072	30.0	1071	30.1	1073	30.0
429.mcf	4	1003	36.4	1012	36.0	1003	36.4	4	771	47.3	770	47.4	772	47.2
445.gobmk	4	1149	36.5	1151	36.5	1150	36.5	4	1069	39.2	1068	39.3	1067	39.3
456.hmmer	4	786	47.5	787	47.4	787	47.4	4	739	50.5	747	50.0	742	50.3
458.sjeng	4	1378	35.1	1379	35.1	1377	35.2	4	1322	36.6	1321	36.6	1322	36.6
462.libquantum	4	1215	68.2	1214	68.3	1215	68.2	4	1215	68.2	1214	68.3	1215	68.2
464.h264ref	4	1722	51.4	1722	51.4	1699	52.1	4	1722	51.4	1722	51.4	1699	52.1
471.omnetpp	4	943	26.5	942	26.5	943	26.5	4	943	26.5	942	26.5	943	26.5
473.astar	4	1074	26.1	1075	26.1	1074	26.1	4	1074	26.1	1075	26.1	1074	26.1
483.xalancbmk	4	760	36.3	758	36.4	758	36.4	4	756	36.5	756	36.5	760	36.3

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

General Notes

```
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2457600' was used to set environment locked pages in memory quantity
'numactl' was used to bind one copy per core, and memory to a local NUMA node
Set vm/nr_hugepages=1200 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
Environment variable PGI_HUGE_PAGES set to 150
```

Base Compiler Invocation

C benchmarks:
pgcc

C++ benchmarks:
pgcpp

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
```

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Base Portability Flags (Continued)

458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-fast -Mipa=fast -Mipa=inline -Mipa=noarg -Mfprelaxed
-Msmartalloc=huge:64 -tp k8-64 -Bstatic_pgi

C++ benchmarks:

-fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc --zc_eh
-tp k8-32 -Bstatic_pgi -lsmartheap

Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w -L/proj/qa/smartheap/SmartHeap_8/lib

Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

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.xalancbmk: -DSPEC_CPU_LINUX



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Peak Optimization Flags

C benchmarks:

400.perlbench: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=inline(pass 2) -fast
-O4 -Mfprelaxed -Msmartalloc=huge:8 -Mnounroll -tp k8-64
-Bstatic_pgi

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4
-Msmartalloc=huge:64 -tp k8-64 -Bstatic_pgi

403.gcc: -fastsse -Mfprelaxed -Msmartalloc=huge:32 -Mipa=fast
-Mipa=inline -tp k8-32 -Bstatic_pgi

429.mcf: -fastsse -Mipa=fast -Mipa=inline -Msmartalloc=huge:16
-tp k8-32 -Bstatic_pgi

445.gobmk: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2) -fast -O4
-Msmartalloc=huge:32 -Mfprelaxed -Mnovect -tp k8-64
-Bstatic_pgi

456.hmmer: -fast -Msmartalloc=huge:32 -Mfprelaxed -Msafeptr
-Mipa=const -Mipa=ptr -Mipa=arg -tp k8-64 -Bstatic_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mipa=noarg(pass 2) -Mpfo(pass 2) -fast
-Msmartalloc=huge:32 -Mfprelaxed -tp k8-64 -Bstatic_pgi

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: basepeak = yes

483.xalancbmk: -fastsse -O4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc --zc_eh -tp k8-32 -Bstatic_pgi -lsmartheap

Peak Other Flags

C benchmarks:

-w

C++ benchmarks:

-w -L/proj/qa/smartheap/SmartHeap_8/lib



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

http://www.spec.org/cpu2006/flags/pgi710_flags.html

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

http://www.spec.org/cpu2006/flags/pgi710_flags.xml

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

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