



SPEC® CINT2006 Result

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Dell Inc.

SPECint®_rate2006 = 101

PowerEdge R805 (AMD Opteron 2356, 2.30 GHz)

SPECint_rate_base2006 = 88.0

CPU2006 license: 55

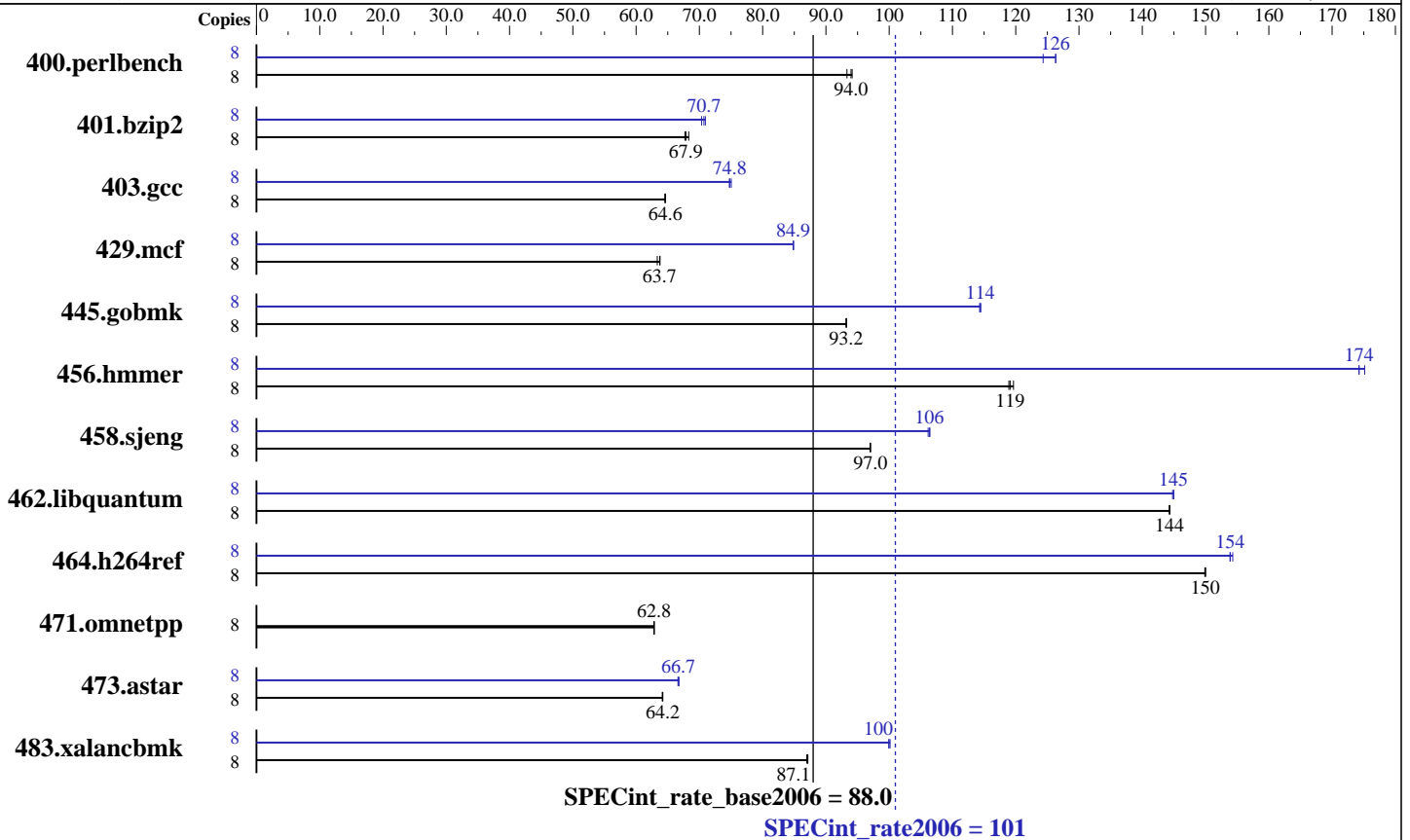
Test date: Mar-2008

Test sponsor: Dell Inc.

Hardware Availability: Apr-2008

Tested by: Dell Inc.

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2356
 CPU Characteristics:
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 CPU(s) orderable: 2 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 2 MB I+D on chip per chip
 Other Cache: None
 Memory: 16 GB (8x2GB, DDR2-667, CL5, Reg, Dual Rank)
 Disk Subsystem: 1x73GB SAS, 10000 RPM
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.1
 Auto Parallel: No
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 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	8	838	93.3	832	94.0	830	94.1	8	629	124	619	126	619	126
401.bzip2	8	1130	68.3	1137	67.9	1140	67.7	8	1097	70.3	1088	70.9	1092	70.7
403.gcc	8	998	64.6	997	64.6	996	64.6	8	861	74.8	862	74.7	858	75.0
429.mcf	8	1152	63.3	1144	63.8	1145	63.7	8	860	84.8	860	84.9	860	84.9
445.gobmk	8	900	93.2	900	93.2	900	93.2	8	733	114	734	114	734	114
456.hmmer	8	627	119	624	120	628	119	8	428	174	426	175	428	174
458.sjeng	8	998	97.0	998	97.0	997	97.0	8	912	106	910	106	909	106
462.libquantum	8	1149	144	1149	144	1148	144	8	1144	145	1145	145	1143	145
464.h264ref	8	1180	150	1180	150	1181	150	8	1150	154	1151	154	1147	154
471.omnetpp	8	796	62.8	796	62.8	795	62.9	8	796	62.8	796	62.8	795	62.9
473.astar	8	875	64.2	876	64.1	875	64.2	8	843	66.6	842	66.7	841	66.8
483.xalancbmk	8	633	87.1	634	87.1	635	87.0	8	552	99.9	551	100	552	100

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

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2457600' was used to set environment locked pages in memory quantity
Environment variable PGI_HUGE_PAGES set to 150
Set vm/nr_hugepages=1200 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
numactl used to bind copies to the cores
```

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=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:150 -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:150 --zc_eh -tp barcelona -Bstatic_pgi

Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

C++ benchmarks (except as noted below):

pathCC

471.omnetpp: pgcpp



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Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
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 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: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0
 -WOPT:if_conv=0 -CG:local_sched_alg=1

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4
 -Msmartalloc=huge:150 -Mnounroll -tp barcelona-64
 -Bstatic_pgi

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

429.mcf: -fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline:1
 -Msmartalloc=huge:150 -tp barcelona -Bstatic_pgi

445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict -LNO:opt=0
 -CG:p2align=on

456.hmmer: -fastsse -Munroll=n:8 -Msmartalloc=huge:150 -Mfprelaxed
 -Mvect=partial -Msafeptr -Mipa=jobs:4 -Mipa=const
 -Mipa=ptr -Mipa=arg -Mipa=inline -tp barcelona-64
 -Bstatic_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)
 -Mipa=inline:1(pass 2) -Mipa=noarg(pass 2) -Mpfo(pass 2)
 -fastsse -Msmartalloc=huge:150 -Mfprelaxed
 -tp barcelona-64 -Bstatic_pgi

462.libquantum: -fastsse -Mfprelaxed -Msmartalloc=huge:150 -Munroll=m:8
 -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mipa=noarg
 -tp barcelona-64 -Bstatic_pgi

464.h264ref: -Mpfi=indirect(pass 1) -Mipa=jobs:4(pass 2)
 -Mipa=fast(pass 2) -Mipa=inline(pass 2)
 -Mpfo=indirect(pass 2) -fastsse -Msmartalloc=huge:150
 -Mfprelaxed -tp barcelona-64 -Bstatic_pgi

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=barcelona -Ofast -TENV:frame_pointer=off
-WOPT:if_conv=0 -GRA:optimize_boundary=on -IPA:plimit=525
-m32 -lsmartheap

483.xalancbmk: -march=barcelona -Ofast -m32 -OPT:unroll_times_max=8
-CG:push_pop_int_saved_regs=off -CG:ptr_load_use=0
-lsmartheap

Peak Other Flags

C benchmarks (except as noted below):

-w

400.perlbench: No flags used

403.gcc: No flags used

445.gobmk: No flags used

C++ benchmarks (except as noted below):

-L/root/work/cpu2006/amd123GH.libs/32

471.omnetpp: -w

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

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090714.00.html>

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

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090714.00.xml>

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

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