SPEC® CINT2006 Result

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Dell Inc.

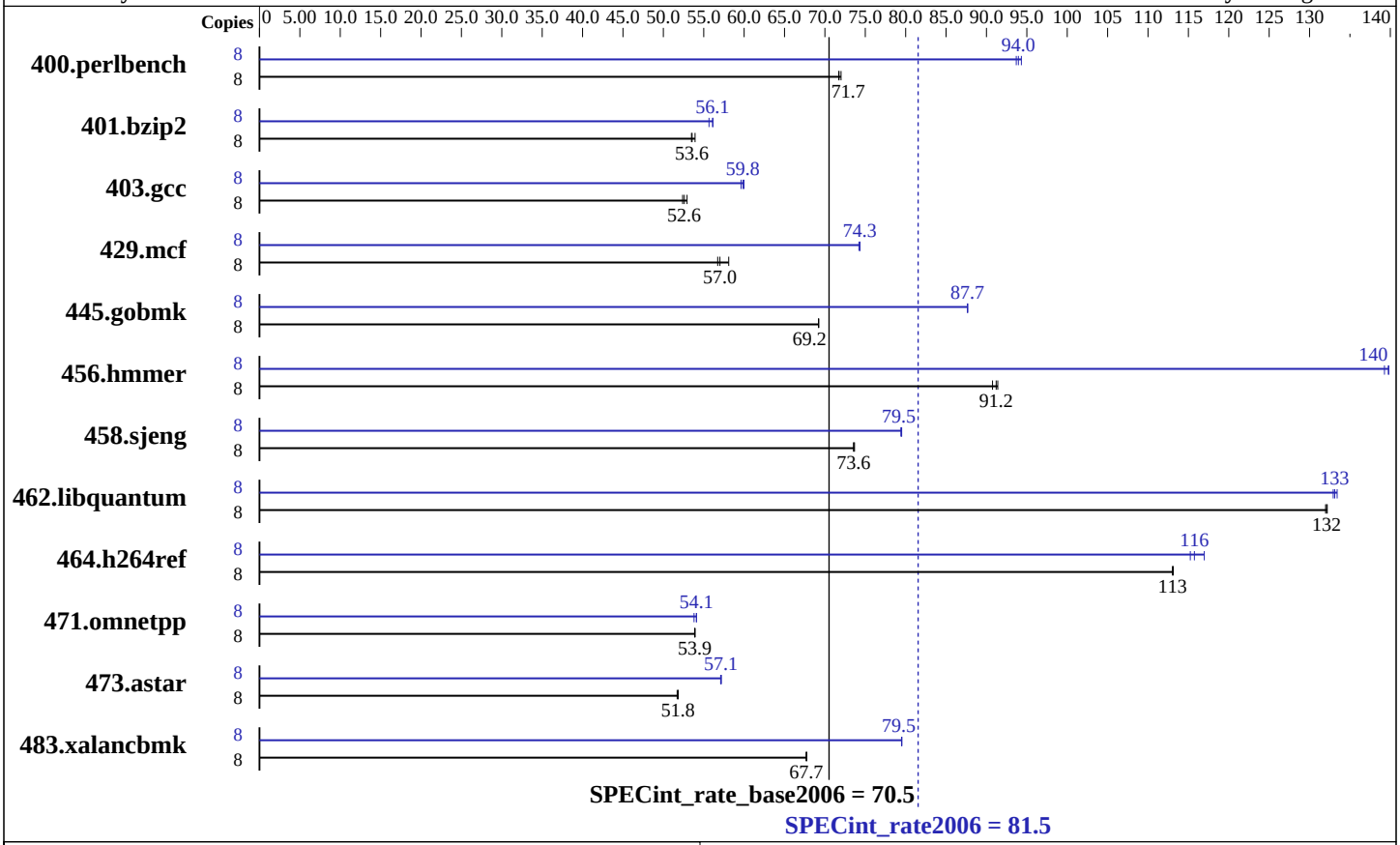
PowerEdge M805 (AMD Opteron 2344 HE, 1.7 GHz)

SPECint®_rate2006 = 81.5

SPECint_rate_base2006 = 70.5

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Sep-2008
Hardware Availability: Apr-2008
Software Availability: Aug-2008



Hardware

CPU Name:	AMD Opteron 2344 HE
CPU Characteristics:	
CPU MHz:	1700
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 (8 x 2 GB DDR2-667 Dual Rank)
Disk Subsystem:	1 x 73 15000 RPM SATA
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp
Compiler:	PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.2
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 8.1 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	1090	71.7	**1089**	**71.7**	1086	72.0	8	834	93.7	829	94.3	**832**	**94.0**
401.bzip2	8	1432	53.9	**1441**	**53.6**	1443	53.5	8	1387	55.7	1375	56.1	**1376**	**56.1**
403.gcc	8	1229	52.4	1217	52.9	**1224**	**52.6**	8	**1076**	**59.8**	1074	60.0	1080	59.6
429.mcf	8	1256	58.1	1286	56.7	**1280**	**57.0**	8	983	74.2	**982**	**74.3**	981	74.3
445.gobmk	8	1212	69.2	**1212**	**69.2**	1212	69.2	8	957	87.6	**957**	**87.7**	957	87.7
456.hmmer	8	822	90.8	**818**	**91.2**	817	91.4	8	**534**	**140**	534	140	536	139
458.sjeng	8	**1316**	**73.6**	1314	73.7	1316	73.5	8	**1218**	**79.5**	1218	79.5	1219	79.4
462.libquantum	8	1256	132	**1255**	**132**	1254	132	8	1242	133	**1245**	**133**	1247	133
464.h264ref	8	1565	113	**1566**	**113**	1566	113	8	**1530**	**116**	1536	115	1514	117
471.omnetpp	8	927	53.9	**928**	**53.9**	928	53.9	8	924	54.1	929	53.8	**924**	**54.1**
473.astar	8	**1084**	**51.8**	1084	51.8	1086	51.7	8	984	57.1	**983**	**57.1**	982	57.2
483.xalancbmk	8	**815**	**67.7**	815	67.8	816	67.7	8	694	79.5	694	79.5	**694**	**79.5**

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
```

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 limit
 Set vm/nr_hugepages=1200 in /etc/sysctl.conf
 Environment variable PGI_HUGE_PAGES set to 150
 mount -t hugetlbfs nodev /mnt/hugepages
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/cpu2006-1.1/amd729gh-libs:/root/cpu2006-1.1/amd729gh-libs/32:\$LD_LIBRARY_PATH"
```

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`
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:
`-fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi`

C++ benchmarks:
`-fastsse -Msmartalloc=huge:150 -Mfprelaxed --zc_eh -Mipa=fast -Mipa=inline -tp barcelona -Bstatic_pgi`

Base Other Flags

C benchmarks:
`-Mipa=jobs:4`

C++ benchmarks:
`-Mipa=jobs:4`

Peak Compiler Invocation

C benchmarks (except as noted below):
`pgcc`

400.perlbench: `pathcc`

403.gcc: `pathcc`

445.gobmk: `pathcc`

464.h264ref: `pathcc`

C++ benchmarks (except as noted below):
`pathCC`

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Peak Compiler Invocation (Continued)

473.astar: 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

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=indirect(pass 1) -Mpfo=indirect(pass 2) -fastsse -O4
-Msmartalloc=huge:150 -Mprefetch=t0 -Mnounroll
-tp barcelona-64 -Bstatic_pgi

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

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

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

456.hmmer: -fastsse -Mvect=partial -Munroll=n:8 -Msmartalloc=huge:150
-Msafeptr -Mprefetch=t0 -Mfprelaxed -Mipa=const -Mipa=ptr
-Mipa=arg -Mipa=inline -tp barcelona-64 -Bstatic_pgi

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

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

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Peak Optimization Flags (Continued)

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

C++ benchmarks:

471.omnetpp: -march=barcelona -Ofast -CG:gcm=off -INLINE:aggressive=on
-OPT:alias=disjoint -WOPT:if_conv=0 -m32 -lsmartheap

473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
-Mipa=inline:6(pass 2) -fastsse -O4 -Msmartalloc=huge:150
-Msafeptr=global -Mfprelaxed --zc_eh -tp barcelona
-Bstatic_pgi

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

Peak Other Flags

C benchmarks:

429.mcf: -Mipa=jobs:4

456.hmmer: -Mipa=jobs:4

458.sjeng: -Mipa=jobs:4(pass 2)

462.libquantum: -Mipa=jobs:4

C++ benchmarks (except as noted below):
-L/root/work/libraries/SmartHeap-8.1/lib

473.astar: -Mipa=jobs:4(pass 2)

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/amd729gh-flags.html
http://www.spec.org/cpu2006/flags/amd-platform.20090713.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/amd729gh-flags.xml
http://www.spec.org/cpu2006/flags/amd-platform.20090713.xml

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