



SPEC[®] CINT2006 Result

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Dell Inc.

SPECint[®]_rate2006 = 203

PowerEdge R805 (AMD Opteron 2435, 2.60 GHz)

SPECint_rate_base2006 = 160

CPU2006 license: 55

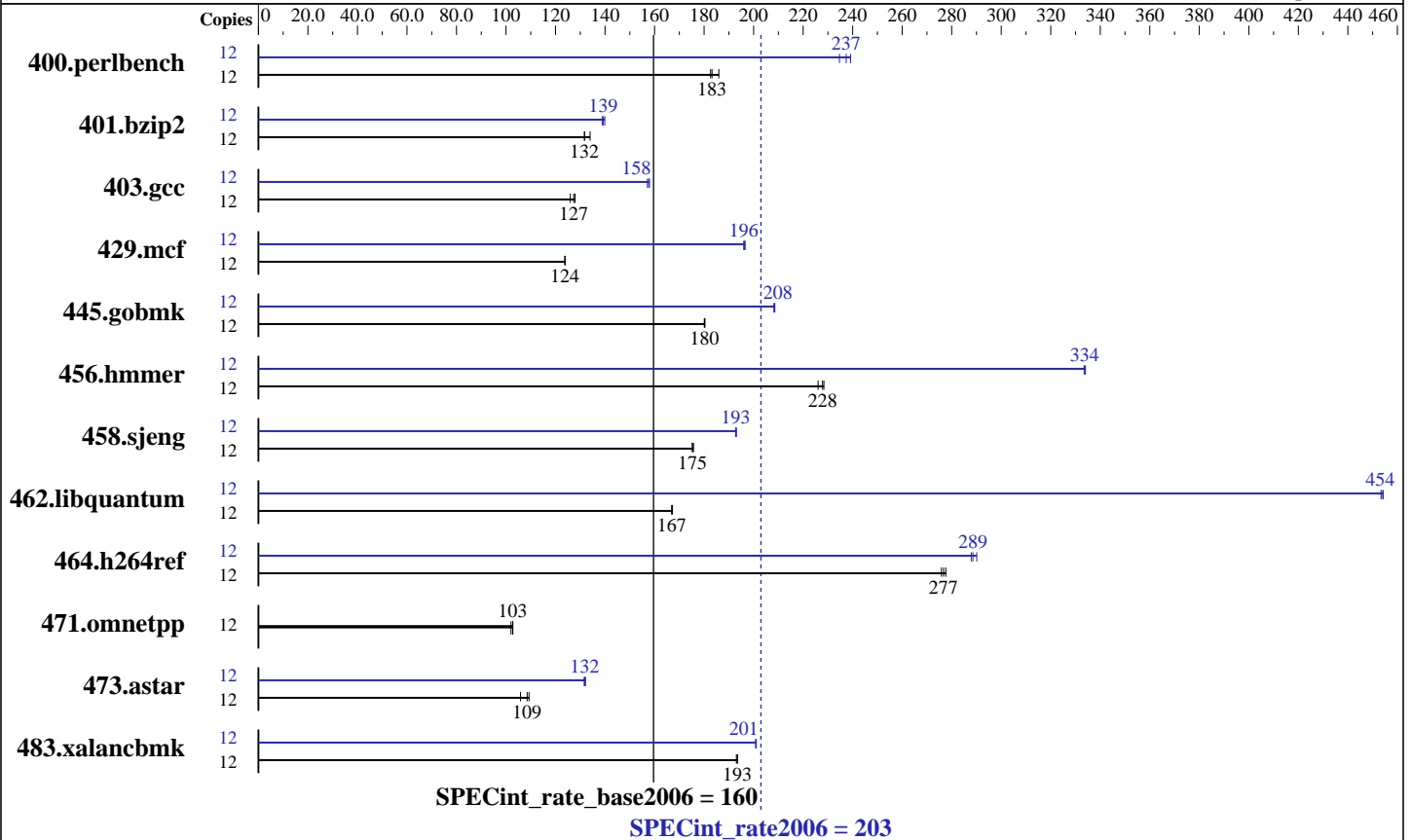
Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: Jul-2009

Tested by: Dell Inc.

Software Availability: Apr-2009



Hardware

CPU Name: AMD Opteron 2435
 CPU Characteristics: 2600
 CPU MHz: Integrated
 FPU: 12 cores, 2 chips, 6 cores/chip
 CPU(s) enabled: 1,2 chips
 CPU(s) orderable: 64 KB I + 64 KB D on chip per core
 Primary Cache: 512 KB I+D on chip per core
 Secondary Cache: 6 MB I+D on chip per chip
 L3 Cache: None
 Other Cache: 32 GB (8 x 4 GB DDR2-800)
 Memory: 1 x 73 GB 15000 RPM SAS
 Disk Subsystem: None
 Other Hardware:

Software

Operating System: Red Hat Enterprise Linux Server release 5.3, Kernel 2.6.18-128.el5
 Compiler: PGI Server Complete Version 8.0 x86 Open64 4.2.2 Compiler Suite
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (Full multiuser with network)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: binutils 2.18 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	12	631	186	642	183	640	183	12	500	235	494	237	490	239
401.bzip2	12	864	134	879	132	880	132	12	834	139	828	140	831	139
403.gcc	12	767	126	759	127	755	128	12	615	157	613	158	612	158
429.mcf	12	884	124	883	124	884	124	12	558	196	557	197	558	196
445.gobmk	12	699	180	698	180	699	180	12	604	209	605	208	604	208
456.hammer	12	495	226	490	228	491	228	12	336	333	335	334	336	334
458.sjeng	12	826	176	828	175	829	175	12	752	193	753	193	753	193
462.libquantum	12	1489	167	1490	167	1487	167	12	548	454	548	453	547	454
464.h264ref	12	963	276	960	277	957	278	12	922	288	915	290	920	289
471.omnetpp	12	730	103	730	103	735	102	12	730	103	730	103	735	102
473.astar	12	796	106	771	109	776	109	12	640	132	639	132	638	132
483.xalancbmk	12	429	193	428	193	428	193	12	412	201	412	201	412	201

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.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set vm/nr_hugepages=5400 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

Platform Notes

HT Assist = Disabled (Default = Enabled)

General Notes

Environment variables set by runspec before the start of the run:

HUGETLB_LIMIT = "450"
LD_LIBRARY_PATH = "/root/cpu2006-1.1/amd0905is-libs/64:/root/cpu2006-1.1/amd0905is-libs/32"
PGI_HUGE_PAGES = "450"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at
<http://developer.amd.com/cpu/open64>



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Base Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

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.hmmcr: -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:
-march=barcelona -Ofast -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m

C++ benchmarks:
-march=barcelona -Ofast -m32 -INLINE:aggressive=on
-L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap

Peak Compiler Invocation

C benchmarks (except as noted below):
opencc

456.hmmcr: pgcc

C++ benchmarks (except as noted below):
openCC

473.astar: pgcpp



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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
 -OPT:unroll_times_max=8 -OPT:unroll_size=256
 -OPT:unroll_level=2 -OPT:keep_ext=on -WOPT:if_conv=0
 -CG:local_sched_alg=1 -CG:unroll_fb_req=on
 -HP:bdt=2m:heap=2m

401.bzip2: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint
 -OPT:unroll_size=0 -OPT:Ofast -OPT:goto=off
 -INLINE:aggressive=on -CG:local_sched_alg=1 -m3dnw
 -HP:bdt=2m:heap=2m

403.gcc: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -LNO:trip_count=256
 -LNO:prefetch_ahead=10 -CG:cmp_peep=on -m32
 -HP:bdt=2m:heap=2m -GRA:unspill=on

429.mcf: -march=barcelona -O3 -ipa -INLINE:aggressive=on
 -CG:gcm=off -GRA:prioritize_by_density=on -m32
 -HP:bdt=2m:heap=2m

445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict
 -OPT:unroll_times_max=8 -OPT:unroll_size=256
 -OPT:unroll_level=2 -OPT:keep_ext=on -ipa -IPA:plimit=750
 -IPA:min_hotness=300 -IPA:pu_reorder=1 -LNO:prefetch=1
 -LNO:ignore_feedback=off -CG:p2align=on
 -CG:unroll_fb_req=on -HP:bdt=2m:heap=2m

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

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Peak Optimization Flags (Continued)

```
458.sjeng: -march=barcelona -fb_create fbdata(pass 1)
          -fb_opt fbdata(pass 2) -O3 -ipa -LNO:ignore_feedback=off
          -LNO:full_unroll=10 -LNO:fusion=0 -LNO:fission=2
          -IPA:pu_reorder=2 -CG:ptr_load_use=0
          -OPT:unroll_times_max=8 -INLINE:aggressive=on
          -HP:bdt=2m:heap=2m
```

```
462.libquantum: -march=barcelona -Ofast -LNO:pf2=0 -CG:gcm=off
               -CG:use_prefetchnta=on -CG:cmp_peep=on -WOPT:aggstr=0
               -HP:bdt=2m:heap=2m -OPT:alias=disjoint
               -INLINE:aggressive=on -IPA:space=1000 -IPA:plimit=20000
```

```
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 -HP:bdt=2m:heap=2m
```

C++ benchmarks:

```
471.omnetpp: basepeak = yes
```

```
473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
           -Mipa=inline:6(pass 2) -fastsse -O4 -Msmartalloc=huge
           -Msafeptr=global -Mfprelaxed --zc_eh -tp shanghai-32
           -Bstatic_pgi
```

```
483.xalancbmk: -march=barcelona -Ofast -INLINE:aggressive=on -m32
               -CG:cmp_peep=on -GRA:unspill=on -TENV:frame_pointer=off
               -L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap
```

Peak Other Flags

C benchmarks:

```
456.hmmmer: -Mipa=jobs:4
```

C++ benchmarks:

```
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/pgi80_linux_flags.20090710.html
<http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags.html>
<http://www.spec.org/cpu2006/flags/amd-platform.html>

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/pgi80_linux_flags.20090710.xml
<http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags.xml>
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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