



SPEC® CINT2006 Result

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Dell Inc.

SPECint®_rate2006 = 176

PowerEdge M905 (AMD Opteron 8354, 2.2 GHz)

SPECint_rate_base2006 = 152

CPU2006 license: 55

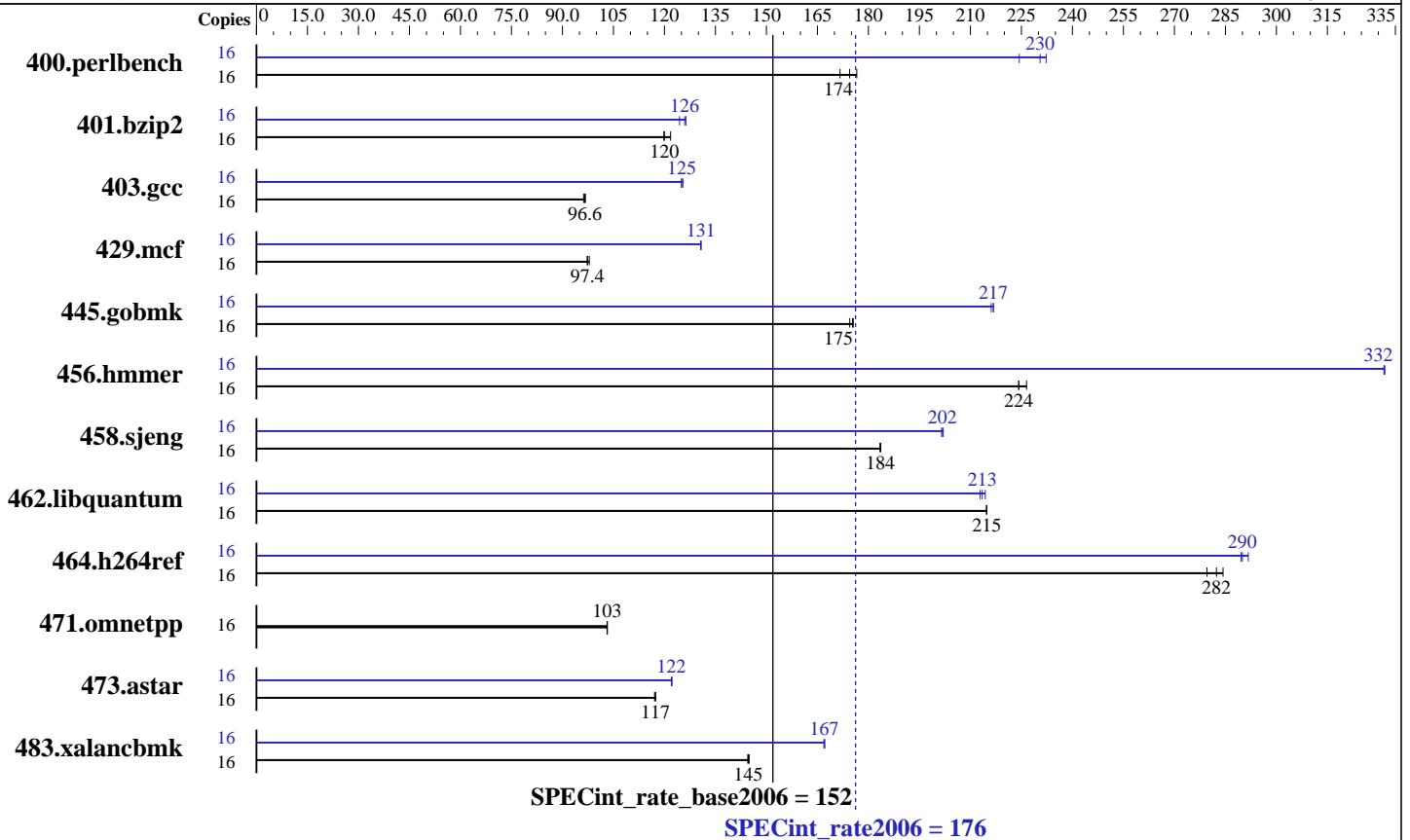
Test date: Jul-2008

Test sponsor: Dell Inc.

Hardware Availability: Aug-2008

Tested by: Dell Inc.

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 8354
 CPU Characteristics:
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip
 CPU(s) orderable: 4 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: 32 GB (16 x 2GB, DDR2-667, CL5, Reg, Dual Rank)
 Disk Subsystem: 1 x 36 GB SAS 15000 RPM (OS), 1 x 73 GB SAS 10K RPM (CPU2006)
 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 3.1
 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	16	885	177	896	174	911	172	16	697	224	673	232	678	230
401.bzip2	16	1268	122	1288	120	1287	120	16	1241	124	1222	126	1226	126
403.gcc	16	1331	96.8	1334	96.6	1338	96.2	16	1030	125	1031	125	1027	125
429.mcf	16	1491	97.9	1499	97.4	1500	97.3	16	1116	131	1116	131	1116	131
445.gobmk	16	956	176	957	175	962	175	16	777	216	774	217	774	217
456.hmmer	16	666	224	666	224	659	227	16	450	332	450	332	450	332
458.sjeng	16	1056	183	1055	184	1054	184	16	958	202	961	202	959	202
462.libquantum	16	1543	215	1543	215	1544	215	16	1553	213	1558	213	1546	214
464.h264ref	16	1245	284	1266	280	1254	282	16	1214	292	1223	290	1221	290
471.omnetpp	16	969	103	970	103	969	103	16	969	103	970	103	969	103
473.astar	16	959	117	957	117	957	117	16	920	122	919	122	920	122
483.xalancbmk	16	764	145	762	145	763	145	16	661	167	660	167	661	167

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

Operating System Notes

'numactl' was used to bind copies to the cores
Environment variable PGI_HUGE_PAGES set to 150
'ulimit -s unlimited' was used to set environment stack size
mount -t hugetlbfs nodev /mnt/hugepages

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

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Base Portability Flags (Continued)

464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Base Other Flags

C benchmarks:

-w -Mipa=jobs:4

C++ benchmarks:

-w -Mipa=jobs:4

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

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

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(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=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 -Mfp relaxed
 -Mvect=partial -Msafeptr -Mipa=const -Mipa=ptr -Mipa=arg
 -Mipa=inline -tp barcelona-64 -Bstatic_pgi

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

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

464.h264ref: -Mpfi=indirect(pass 1) -Mipa=fast(pass 2)
 -Mipa=inline(pass 2) -Mpfo=indirect(pass 2) -fastsse
 -Msmartalloc=huge:150 -Mfp relaxed -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 -Mipa=jobs:4(pass 2)

400.perlbench: No flags used

401.bzip2: -w

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 -Mipa=jobs:4

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

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090713.01.html>

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

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090713.01.xml>

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 19:06:59 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 September 2008.