



SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®_rate2006 = 240

PowerEdge M905 (AMD Opteron 8382, 2.60 GHz)

SPECint_rate_base2006 = 200

CPU2006 license: 55

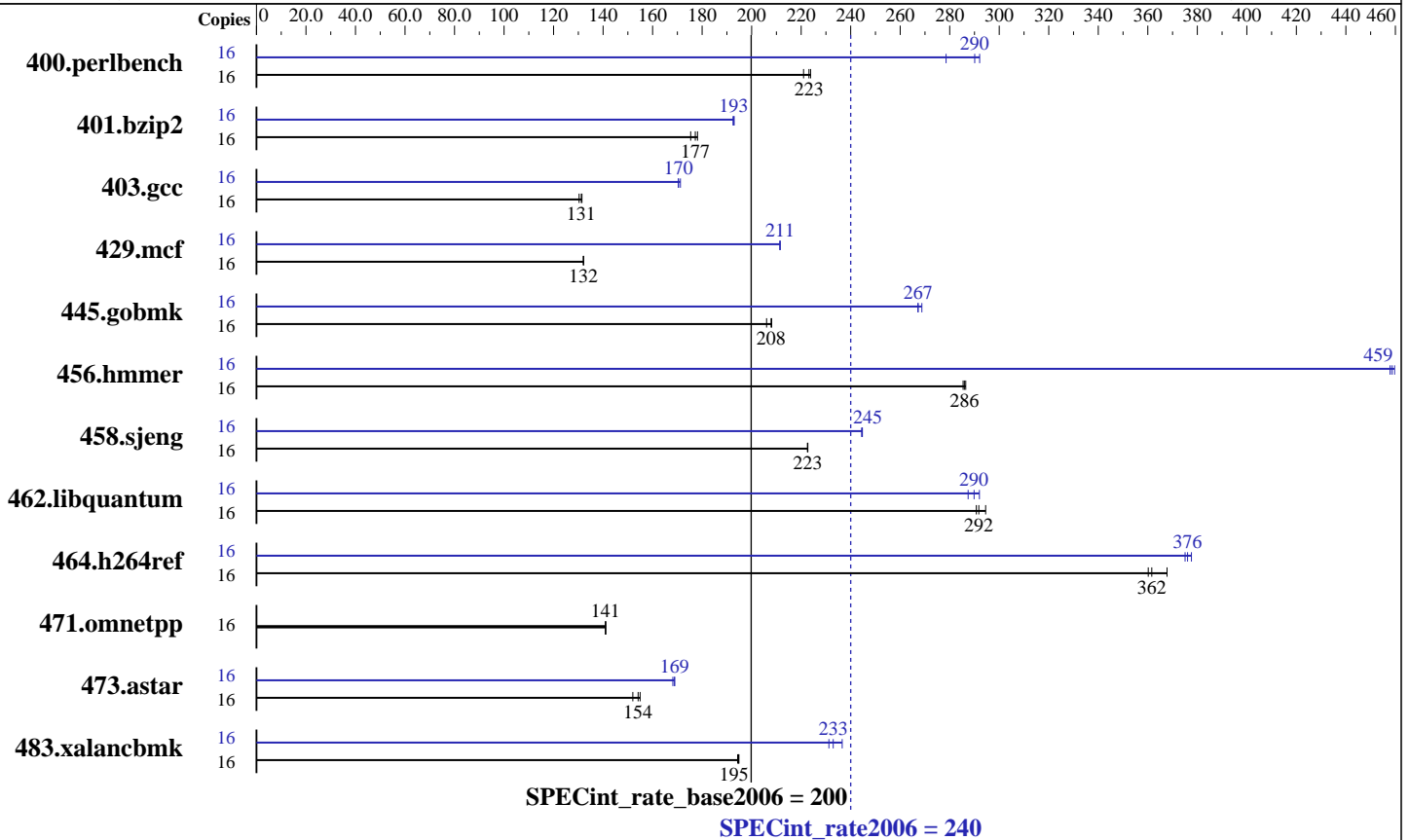
Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

Tested by: Dell Inc.

Software Availability: Oct-2008



Hardware

CPU Name: AMD Opteron 8382
 CPU Characteristics:
 CPU MHz: 2600
 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: 6 MB I+D on chip per chip
 Other Cache: None
 Memory: 64 GB (16 x 4 GB DDR2-800)
 Disk Subsystem: 1 x 73 GB 10000 RPM SAS
 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: binutils 2.18
 32-bit and 64-bit libhugetlbfs libraries
 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	16	707	221	<u>701</u>	<u>223</u>	698	224	16	<u>539</u>	<u>290</u>	561	279	535	292
401.bzip2	16	<u>871</u>	<u>177</u>	880	175	867	178	16	802	192	<u>801</u>	<u>193</u>	800	193
403.gcc	16	988	130	<u>982</u>	<u>131</u>	980	131	16	<u>756</u>	<u>170</u>	752	171	756	170
429.mcf	16	<u>1105</u>	<u>132</u>	1105	132	1105	132	16	690	211	<u>690</u>	<u>211</u>	690	211
445.gobmk	16	807	208	<u>808</u>	<u>208</u>	815	206	16	625	269	628	267	<u>628</u>	<u>267</u>
456.hammer	16	<u>522</u>	<u>286</u>	521	286	523	285	16	<u>325</u>	<u>459</u>	325	460	326	458
458.sjeng	16	869	223	870	223	<u>870</u>	<u>223</u>	16	792	244	791	245	<u>791</u>	<u>245</u>
462.libquantum	16	1140	291	<u>1136</u>	<u>292</u>	1126	295	16	1153	287	1135	292	<u>1144</u>	<u>290</u>
464.h264ref	16	983	360	963	368	<u>979</u>	<u>362</u>	16	944	375	938	378	<u>942</u>	<u>376</u>
471.omnetpp	16	<u>709</u>	<u>141</u>	709	141	710	141	16	<u>709</u>	<u>141</u>	709	141	710	141
473.astar	16	725	155	<u>729</u>	<u>154</u>	739	152	16	<u>665</u>	<u>169</u>	665	169	668	168
483.xalancbmk	16	567	195	568	194	<u>567</u>	<u>195</u>	16	467	237	477	231	<u>474</u>	<u>233</u>

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

The libhugetlbfs libraries were installed using the installation rpms that came with the distribution.

'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=14336 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_MORECORE = "yes"
LD_LIBRARY_PATH = "/root/cpu2006-1.1/amd909gh-libs/64:/root/cpu2006-1.1/amd909gh-libs/32"



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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:
-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:
-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
--zc_eh -Mipa=fast -Mipa=inline:10 -tp barcelona-32 -Bstatic_pgi

Base Other Flags

C benchmarks:
-Mipa=jobs:4

C++ benchmarks:
-Mipa=jobs:4

Peak Compiler Invocation

C benchmarks (except as noted below):
pathcc

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Peak Compiler Invocation (Continued)

456.hmmcr: pgcc

462.libquantum: pgcc

C++ benchmarks (except as noted below):

pgcpp

483.xalancbmk: pathCC

Peak Portability Flags

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

Peak Optimization Flags

C benchmarks:

400.perlbench: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2)
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
 -L/usr/lib64 -lhugetlbfs(pass 2) -Ofast -IPA:plimit=20000
 -IPA:field_reorder=on -LNO:opt=0 -WOPT:if_conv=0
 -CG:local_sched_alg=1

401.bzip2: -march=barcelona -O3 -OPT:alias=disjoint -OPT:Ofast
 -OPT:goto=off -INLINE:aggressive=on -CG:local_sched_alg=1
 -m3dnow
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
 -L/usr/lib64 -lhugetlbfs

403.gcc: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -OPT:malloc_alg=1
 -LNO:trip_count=256 -LNO:prefetch_ahead=10
 -CG:prefer_lru_reg=off -m32

429.mcf: -march=barcelona -O3 -ipa -INLINE:aggressive=on
 -CG:gcm=off -GRA:prioritize_by_density=on -m32
 -L/usr/lib -lhugetlbfs

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Peak Optimization Flags (Continued)

445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2)
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
 -L/usr/lib64 -lhugetlbfs(pass 2) -O3 -OPT:alias=restrict
 -LNO:prefetch=1 -LNO:ignore_feedback=off -CG:p2align=on

456.hmmcr: -Mvect=cachesize:6291456 -fastsse -Mvect=partial
 -Munroll=n:8 -Msmartalloc=huge -Msafeptr -Mprefetch=t0
 -Mfprelaxed -Mipa=const -Mipa=ptr -Mipa=arg -Mipa=inline
 -tp barcelona-64 -Bstatic_pgi

458.sjeng: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2)
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
 -L/usr/lib64 -lhugetlbfs(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

462.libquantum: -Mvect=cachesize:6291456 -fastsse -Munroll=m:8
 -Msmartalloc=huge -Mprefetch=distance:4 -Mfprelaxed
 -Mipa=fast -Mipa=inline -Mipa=noarg -tp barcelona-64
 -Bstatic_pgi

464.h264ref: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2)
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
 -L/usr/lib64 -lhugetlbfs(pass 2) -O3 -IPA:plimit=20000
 -OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr_load_use=0
 -CG:push_pop_int_saved_regs=off -CG:prefer_lru_reg=off

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
 -Mipa=inline:6(pass 2) -Mvect=cachesize:6291456 -fastsse
 -O4 -Msmartalloc=huge -Msafeptr=global -Mfprelaxed
 --zc_eh -tp barcelona-32 -Bstatic_pgi

483.xalancbmk: -march=barcelona -Ofast -INLINE:aggressive=on -m32
 -L/root/work/libraries/SmartHeap_8.1/lib -lsmarheap

Peak Other Flags

C benchmarks:

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Peak Other Flags (Continued)

456.hmmmer: -Mipa=jobs:4

462.libquantum: -Mipa=jobs:4

C++ benchmarks (except as noted below):
-Mipa=jobs:4(pass 2)

483.xalancbmk: No flags used

The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.20090713.html

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.html

<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.html>

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

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.20090713.xml

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.xml

<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.xml>

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

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