SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

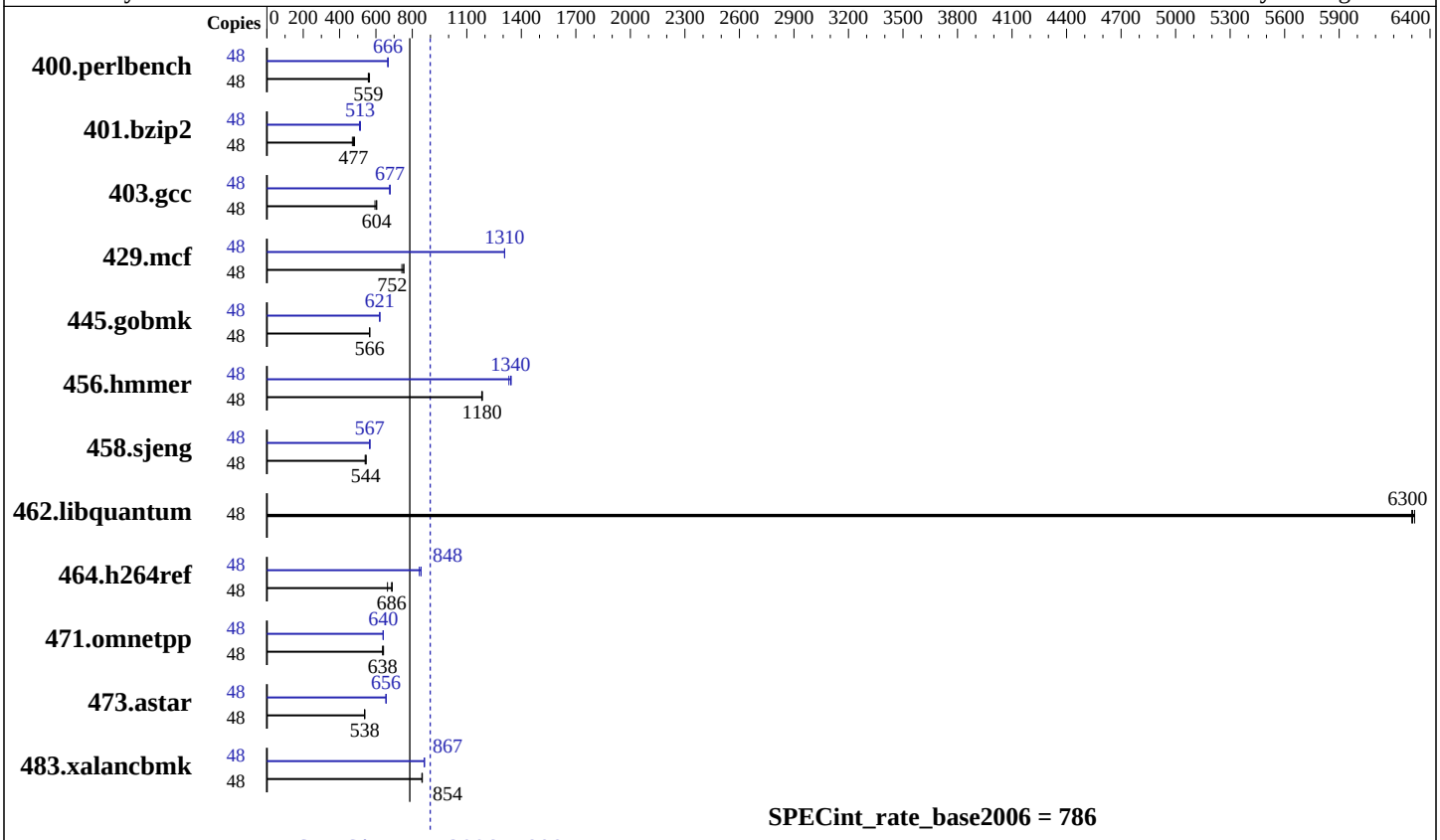
PowerEdge R815 (AMD Opteron 6344, 2.60 GHz)

SPECint®_rate2006 = 899

SPECint_rate_base2006 = 786

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

Test date: Nov-2012
Hardware Availability: Dec-2012
Software Availability: Aug-2012



Hardware

CPU Name:	AMD Opteron 6344
CPU Characteristics:	AMD Turbo CORE technology up to 3.20 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	48 cores, 4 chips, 12 cores/chip
CPU(s) orderable:	2,4 chips
Primary Cache:	384 KB I on chip per chip, 64 KB I shared / 2 cores; 16 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 2 MB shared / 2 cores
L3 Cache:	16 MB I+D on chip per chip, 8 MB shared / 6 cores
Other Cache:	None
Memory:	256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	6 x 73 GB 7200 RPM SATA
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.3, Kernel 2.6.32-279.el6.x86_64
Compiler:	C/C++: Version 4.5.2 of x86 Open64 Compiler Suite (from AMD)
Auto Parallel:	No
File System:	ext4
System State:	Run level 3 (Full multiuser with network)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap 10.0 32-bit Library for Linux

SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R815 (AMD Opteron 6344, 2.60 GHz)

SPECint_rate2006 = 899

SPECint_rate_base2006 = 786

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

Test date: Nov-2012
Hardware Availability: Dec-2012
Software Availability: Aug-2012

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	840	558	**839**	**559**	831	564	48	703	667	**704**	**666**	705	665
401.bzip2	48	961	482	985	470	**972**	**477**	48	901	514	**902**	**513**	909	509
403.gcc	48	650	595	**640**	**604**	640	604	48	569	679	**571**	**677**	572	675
429.mcf	48	581	754	**582**	**752**	589	743	48	**335**	**1310**	335	1310	335	1310
445.gobmk	48	890	566	**890**	**566**	891	565	48	811	621	810	622	**811**	**621**
456.hmmer	48	379	1180	**378**	**1180**	378	1190	48	**334**	**1340**	336	1330	333	1340
458.sjeng	48	1074	541	**1068**	**544**	1063	546	48	**1024**	**567**	1029	564	1024	567
462.libquantum	48	157	6320	158	6300	**158**	**6300**	48	157	6320	158	6300	**158**	**6300**
464.h264ref	48	1601	664	1540	690	**1549**	**686**	48	1267	838	1252	848	**1253**	**848**
471.omnetpp	48	471	637	467	642	**470**	**638**	48	469	639	468	641	**469**	**640**
473.astar	48	627	538	626	538	**626**	**538**	48	514	656	514	656	**514**	**656**
483.xalancbmk	48	388	853	**388**	**854**	387	855	48	**382**	**867**	383	865	382	867

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 transparent_hugepage=never as a boot parameter in /boot/grub/menu.lst

Set vm/nr_hugepages=43008 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

General Notes

```
Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "896"
LD_LIBRARY_PATH = "/root/cpu2006-1.2/amd1206-rate-libs-revA/32:/root/cpu2006-1.2/amd1206-rate-libs-revA/64"

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

Binaries were compiled on a system with 2x AMD Opteron 6386SE chips + 128GB Memory using RHEL 6.3
```

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.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:
-Ofast -CG:local_sched_alg=1 -INLINE:aggressive=ON -IPA:plimit=8000
-IPA:small_pu=100 -HP:bd=2m:heap=2m -mso -LNO:prefetch=2
-march=bdver1

C++ benchmarks:
-Ofast -m32 -INLINE:aggressive=on -CG:cmp_peep=on -D__OPEN64_FAST_SET
-march=bdver1 -L/root/work/libraries/SmartHeap-10/lib -lsmartheap

Peak Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64

Continued on next page

Peak Portability Flags (Continued)

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
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:prefetch=2 -LNO:opt=0 -IPA:plimit=20000
-OPT:unroll_times_max=8 -OPT:unroll_size=256
-OPT:unroll_level=2 -OPT:keep_ext=on -WOPT:if_conv=0
-WOPT:sib=on -CG:local_sched_alg=1 -CG:unroll_fb_req=on
-CG:movext_icmp=off -HP:bd=2m:heap=2m -march=bdver1
-GRA:aggr_loop_splitting=off -GRA:loop_splitting=off

401.bzip2: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-LNO:prefetch=2 -LNO:pf2=0 -OPT:alias=disjoint
-OPT:goto=off -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m
-march=bdver2

403.gcc: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:trip_count=256 -CG:cmp_peep=on -CG:pre_minreg_level=2
-m32 -HP:bdt=2m:heap=2m -GRA:unspill=on -IPA:small_pu=200
-WOPT:sib=on -march=bdver2 -mno-fma4

429.mcf: -O3 -OPT:unroll_times_max=5 -ipa -INLINE:aggressive=on
-CG:gcm=off -CG:dsched=on -GRA:prioritize_by_density=on
-m32 -HP:bdt=2m:heap=2m -mso -march=bdver1

445.gobmk: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-OPT:unroll_size=256 -OPT:unroll_times_max=8
-OPT:keep_ext=on -IPA:plimit=750 -IPA:min_hotness=300
-IPA:pu_reorder=1 -LNO:ignore_feedback=off -WOPT:if_conv=2
-HP:bd=2m:heap=2m -march=bdver1

456.hmmer: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:prefetch=2 -OPT:alias=disjoint
-OPT:unroll_times_max=16 -OPT:unroll_size=512
-OPT:unroll_level=2 -OPT:keep_ext=on -CG:cflow=0
-CG:cmp_peep=on -CG:pre_local_sched=off -HP:bdt=2m:heap=2m
-CG:p2align=0 -CG:load_exe=3 -CG:dsched=on -march=bdver1

Continued on next page

Peak Optimization Flags (Continued)

458.sjeng: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast -CG:ptr_load_use=0 -CG:divrem_opt=on -CG:movext_icmp=off -CG:locs_best=on -LNO:full_unroll=10 -IPA:pu_reorder=2 -HP:heap=2m:bd=2m -WOPT:sib=on -march=bdver1`

462.libquantum: `basepeak = yes`

464.h264ref: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -OPT:unroll_size=256 -OPT:unroll_times_max=2 -IPA:plimit=20000 -OPT:alias=disjoint -CG:ptr_load_use=0 -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m -march=bdver1`

C++ benchmarks:

471.omnetpp: `-Ofast -m32 -INLINE:aggressive=on -CG:cmp_peep=on -WOPT:sib=on -D__OPEN64_FAST_SET -march=bdver2 -mno-fma4 -L/root/work/libraries/SmartHeap-10/lib -lsmartheap`

473.astar: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast -WOPT:if_conv=0 -WOPT:sib=on -CG:divrem_opt=on -CG:p2align=1 -CG:dsched=on -GRA:optimize_boundary=on -OPT:alias=disjoint -INLINE:aggressive=on -IPA:small_pu=3000 -IPA:plimit=3000 -HP:bdt=2m:heap=2m -march=bdver1`

483.xalancbmk: `-Ofast -LNO:prefetch=2 -OPT:unroll_size=512 -OPT:unroll_times_max=8 -D__OPEN64_FAST_SET -INLINE:aggressive=on -m32 -CG:cmp_peep=on -CG:local_sched=off -CG:p2align=1 -GRA:unspill=on -TENV:frame_pointer=off -fno-emit-exceptions -march=bdver2 -mno-fma4 -L/root/work/libraries/SmartHeap-10/lib -lsmartheap`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-II.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-II.xml`

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R815 (AMD Opteron 6344, 2.60 GHz)

SPECint_rate2006 = 899

SPECint_rate_base2006 = 786

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

Test date: Nov-2012
Hardware Availability: Dec-2012
Software Availability: Aug-2012

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 14:45:58 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 January 2013.