



# SPEC<sup>®</sup> CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Dell Inc.

## SPECint<sup>®</sup>\_rate2006 = 212

### PowerEdge R805 (AMD Opteron 2439 SE, 2.80 GHz)

## SPECint\_rate\_base2006 = 167

CPU2006 license: 55

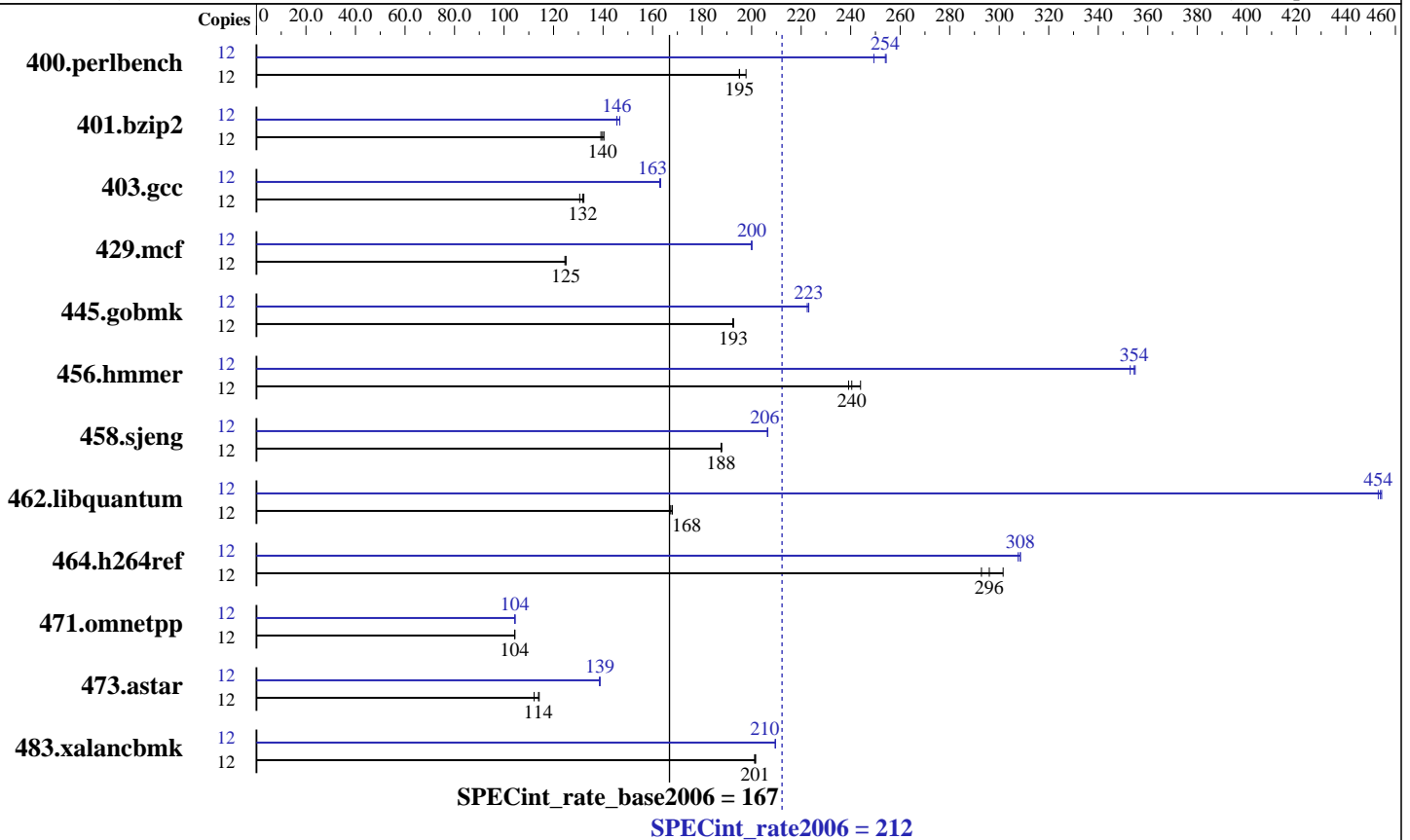
Test date: Jul-2009

Test sponsor: Dell Inc.

Hardware Availability: Aug-2009

Tested by: Dell Inc.

Software Availability: Apr-2009



### Hardware

CPU Name: AMD Opteron 2439 SE  
 CPU Characteristics:  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip  
 CPU(s) orderable: 1,2 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: 6 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (8 x 4 GB DDR2-800)  
 Disk Subsystem: 1 x 73 GB 15000 RPM SAS  
 Other Hardware: None

### 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 (from AMD)  
 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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint\_rate2006 = 212

PowerEdge R805 (AMD Opteron 2439 SE, 2.80 GHz)

SPECint\_rate\_base2006 = 167

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

Test date: Jul-2009  
Hardware Availability: Aug-2009  
Software Availability: Apr-2009

## Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
400.perlbench	12	593	198	<b><u>601</u></b>	<b><u>195</u></b>	601	195	12	470	249	461	254	<b><u>462</u></b>	<b><u>254</u></b>		
401.bzip2	12	825	140	<b><u>828</u></b>	<b><u>140</u></b>	832	139	12	796	146	789	147	<b><u>795</u></b>	<b><u>146</u></b>		
403.gcc	12	730	132	740	131	<b><u>733</u></b>	<b><u>132</u></b>	12	<b><u>592</u></b>	<b><u>163</u></b>	593	163	592	163		
429.mcf	12	878	125	876	125	<b><u>876</u></b>	<b><u>125</u></b>	12	547	200	<b><u>547</u></b>	<b><u>200</u></b>	547	200		
445.gobmk	12	654	192	653	193	<b><u>654</u></b>	<b><u>193</u></b>	12	566	222	564	223	<b><u>565</u></b>	<b><u>223</u></b>		
456.hammer	12	459	244	<b><u>466</u></b>	<b><u>240</u></b>	468	239	12	<b><u>316</u></b>	<b><u>354</u></b>	317	353	315	355		
458.sjeng	12	<b><u>774</u></b>	<b><u>188</u></b>	773	188	774	188	12	<b><u>703</u></b>	<b><u>206</u></b>	704	206	703	206		
462.libquantum	12	1486	167	1480	168	<b><u>1481</u></b>	<b><u>168</u></b>	12	549	453	<b><u>548</u></b>	<b><u>454</u></b>	547	454		
464.h264ref	12	<b><u>897</u></b>	<b><u>296</u></b>	881	302	907	293	12	863	308	<b><u>861</u></b>	<b><u>308</u></b>	861	309		
471.omnetpp	12	719	104	719	104	<b><u>719</u></b>	<b><u>104</u></b>	12	719	104	<b><u>718</u></b>	<b><u>104</u></b>	718	104		
473.astar	12	738	114	<b><u>740</u></b>	<b><u>114</u></b>	751	112	12	607	139	<b><u>607</u></b>	<b><u>139</u></b>	608	139		
483.xalancbmk	12	411	202	412	201	<b><u>411</u></b>	<b><u>201</u></b>	12	395	210	<b><u>395</u></b>	<b><u>210</u></b>	395	210		

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

## 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>



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint\_rate2006 = 212

PowerEdge R805 (AMD Opteron 2439 SE, 2.80 GHz)

SPECint\_rate\_base2006 = 167

CPU2006 license: 55

Test date: Jul-2009

Test sponsor: Dell Inc.

Hardware Availability: Aug-2009

Tested by: Dell Inc.

Software Availability: Apr-2009

## 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:  
-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.hmmer: pgcc

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

473.astar: pgcpp



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint\_rate2006 = 212

PowerEdge R805 (AMD Opteron 2439 SE, 2.80 GHz)

SPECint\_rate\_base2006 = 167

CPU2006 license: 55

Test date: Jul-2009

Test sponsor: Dell Inc.

Hardware Availability: Aug-2009

Tested by: Dell Inc.

Software Availability: Apr-2009

## 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

```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint\_rate2006 = 212

PowerEdge R805 (AMD Opteron 2439 SE, 2.80 GHz)

SPECint\_rate\_base2006 = 167

CPU2006 license: 55

Test date: Jul-2009

Test sponsor: Dell Inc.

Hardware Availability: Aug-2009

Tested by: Dell Inc.

Software Availability: Apr-2009

## 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: -march=barcelona -Ofast -CG:gcm=off -INLINE:aggressive=on  
 -OPT:alias=disjoint -WOPT:if\_conv=0 -m32  
 -L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap

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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint\_rate2006 = 212

PowerEdge R805 (AMD Opteron 2439 SE, 2.80 GHz)

SPECint\_rate\_base2006 = 167

CPU2006 license: 55

Test date: Jul-2009

Test sponsor: Dell Inc.

Hardware Availability: Aug-2009

Tested by: Dell Inc.

Software Availability: Apr-2009

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/pgi80_linux_flags.20090710.xml)
- <http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revB.xml>
- <http://www.spec.org/cpu2006/flags/amd-platform.xml>

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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 03:20:33 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 5 August 2009.