



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Dell Inc.

SPECfp<sup>®</sup>2006 = 21.2

PowerEdge M805 (AMD Opteron 2379 HE, 2.40 GHz)

SPECfp\_base2006 = 17.0

CPU2006 license: 55

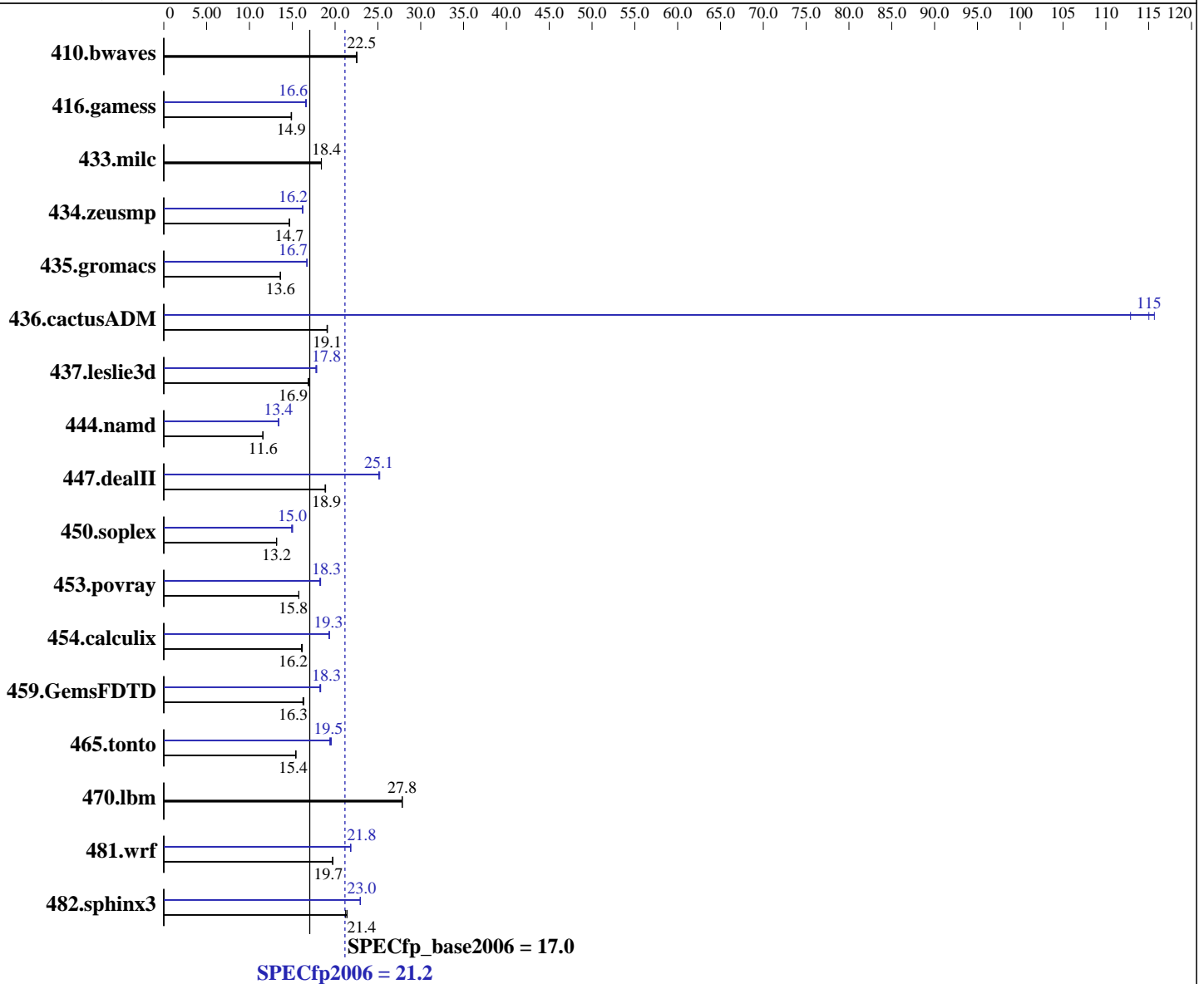
Test date: Mar-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008



### Hardware

CPU Name: AMD Opteron 2379 HE  
 CPU Characteristics:  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 2 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core

Continued on next page

### 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: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 21.2

PowerEdge M805 (AMD Opteron 2379 HE, 2.40 GHz)

SPECfp\_base2006 = 17.0

CPU2006 license: 55

Test date: Mar-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

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 10000 RPM SAS  
Other Hardware: None

Other Software: binutils 2.18  
32-bit and 64-bit libhugetlbfs libraries

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	604	22.5	<b>603</b>	<b>22.5</b>	602	22.6	604	22.5	<b>603</b>	<b>22.5</b>	602	22.6
416.gamess	1312	14.9	1317	14.9	<b>1315</b>	<b>14.9</b>	1177	16.6	1182	16.6	<b>1179</b>	<b>16.6</b>
433.milc	499	18.4	<b>499</b>	<b>18.4</b>	499	18.4	499	18.4	<b>499</b>	<b>18.4</b>	499	18.4
434.zeusmp	<b>620</b>	<b>14.7</b>	621	14.7	620	14.7	561	16.2	<b>561</b>	<b>16.2</b>	562	16.2
435.gromacs	525	13.6	<b>524</b>	<b>13.6</b>	524	13.6	427	16.7	427	16.7	<b>427</b>	<b>16.7</b>
436.cactusADM	627	19.1	626	19.1	<b>626</b>	<b>19.1</b>	<b>104</b>	<b>115</b>	106	113	103	116
437.leslie3d	558	16.9	554	17.0	<b>555</b>	<b>16.9</b>	529	17.8	526	17.9	<b>527</b>	<b>17.8</b>
444.namd	<b>693</b>	<b>11.6</b>	692	11.6	694	11.6	599	13.4	<b>599</b>	<b>13.4</b>	598	13.4
447.dealII	607	18.8	<b>606</b>	<b>18.9</b>	605	18.9	<b>455</b>	<b>25.1</b>	454	25.2	455	25.1
450.soplex	<b>633</b>	<b>13.2</b>	633	13.2	633	13.2	559	14.9	555	15.0	<b>555</b>	<b>15.0</b>
453.povray	<b>337</b>	<b>15.8</b>	338	15.8	337	15.8	<b>291</b>	<b>18.3</b>	290	18.3	292	18.2
454.calculix	513	16.1	<b>510</b>	<b>16.2</b>	510	16.2	428	19.3	<b>427</b>	<b>19.3</b>	427	19.3
459.GemsFDTD	<b>650</b>	<b>16.3</b>	649	16.3	653	16.2	582	18.2	579	18.3	<b>580</b>	<b>18.3</b>
465.tonto	639	15.4	<b>638</b>	<b>15.4</b>	637	15.4	<b>506</b>	<b>19.5</b>	508	19.4	503	19.6
470.lbm	494	27.8	493	27.8	<b>493</b>	<b>27.8</b>	494	27.8	493	27.8	<b>493</b>	<b>27.8</b>
481.wrf	566	19.7	567	19.7	<b>566</b>	<b>19.7</b>	511	21.9	513	21.8	<b>512</b>	<b>21.8</b>
482.sphinx3	918	21.2	910	21.4	<b>912</b>	<b>21.4</b>	<b>849</b>	<b>23.0</b>	849	23.0	850	22.9

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=7146 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 21.2

PowerEdge M805 (AMD Opteron 2379 HE, 2.40 GHz)

SPECfp\_base2006 = 17.0

CPU2006 license: 55

Test date: Mar-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

## 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"

NCPUS = "8"

## Base Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

Fortran benchmarks:

pgf95

Benchmarks using both Fortran and C:

pgcc pgf95

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
 416.gamess: -DSPEC\_CPU\_LP64  
 433.milc: -DSPEC\_CPU\_LP64  
 434.zeusmp: -DSPEC\_CPU\_LP64  
 435.gromacs: -DSPEC\_CPU\_LP64 -Mnomain  
 436.cactusADM: -DSPEC\_CPU\_LP64 -Mnomain  
 437.leslie3d: -DSPEC\_CPU\_LP64  
 444.namd: -DSPEC\_CPU\_LP64  
 447.deall: -DSPEC\_CPU\_LP64  
 450.soplex: -DSPEC\_CPU\_LP64  
 453.povray: -DSPEC\_CPU\_LP64  
 454.calculix: -DSPEC\_CPU\_LP64 -Mnomain  
 459.GemsFDTD: -DSPEC\_CPU\_LP64  
 465.tonto: -DSPEC\_CPU\_LP64  
 470.lbm: -DSPEC\_CPU\_LP64  
 481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
 482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

C benchmarks:

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 21.2

PowerEdge M805 (AMD Opteron 2379 HE, 2.40 GHz)

SPECfp\_base2006 = 17.0

CPU2006 license: 55

Test date: Mar-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

## Base Optimization Flags (Continued)

C++ benchmarks:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed  
--zc\_eh -Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic\_pgi

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

Fortran benchmarks:

-Mipa=jobs:4

Benchmarks using both Fortran and C:

-Mipa=jobs:4

## Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks (except as noted below):

pathCC

444.namd: pgcpp

Fortran benchmarks (except as noted below):

pgf95

416.gamess: pathf95

459.GemsFDTD: pathf95

465.tonto: pathf95

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 21.2

PowerEdge M805 (AMD Opteron 2379 HE, 2.40 GHz)

SPECfp\_base2006 = 17.0

CPU2006 license: 55

Test date: Mar-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

## Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C (except as noted below):

pathcc pathf95

436.cactusADM: pgcc pgf95

454.calculix: pgcc pgf95

## Peak Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
 416.gamess: -DSPEC\_CPU\_LP64  
 433.milc: -DSPEC\_CPU\_LP64  
 434.zeusmp: -DSPEC\_CPU\_LP64  
 435.gromacs: -DSPEC\_CPU\_LP64  
 436.cactusADM: -DSPEC\_CPU\_LP64 -Mnomain  
 437.leslie3d: -DSPEC\_CPU\_LP64  
 444.namd: -DSPEC\_CPU\_LP64  
 453.povray: -DSPEC\_CPU\_LP64  
 454.calculix: -DSPEC\_CPU\_LP64 -Mnomain  
 459.GemsFDTD: -DSPEC\_CPU\_LP64  
 465.tonto: -DSPEC\_CPU\_LP64  
 470.lbm: -DSPEC\_CPU\_LP64  
 481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX -fno-second-underscore  
 482.sphinx3: -DSPEC\_CPU\_LP64

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)  
 -Mipa=fast(pass 2) -Mipa=inline(pass 2)  
 -Mvect=cachesize:6291456 -fastsse -Mfprelaxed -Msmartalloc  
 -tp barcelona-64 -Bstatic\_pgi

C++ benchmarks:

444.namd: -Mphi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)  
 -Mipa=inline(pass 2) -Mvect=cachesize:6291456 -fastsse  
 -Munroll=n:4 -Munroll=m:8 -Msmartalloc=huge -Mnodepchk  
 -Mfprelaxed --zc\_eh -tp barcelona-64 -Bstatic\_pgi

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 21.2

PowerEdge M805 (AMD Opteron 2379 HE, 2.40 GHz)

SPECfp\_base2006 = 17.0

CPU2006 license: 55

Test date: Mar-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

## Peak Optimization Flags (Continued)

447.dealIII: -march=barcelona -Ofast -static -INLINE:aggressive=on  
-fno-exceptions -m32

450.soplex: -march=barcelona -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -L/usr/lib -lhugetlbfs(pass 2) -O3  
-INLINE:aggressive=on -OPT:IEEE\_arith=3  
-OPT:IEEE\_NaN\_Inf=off -OPT:fold\_unsigned\_relops=on  
-OPT:malloc\_alg=1 -CG:load\_exe=0 -fno-exceptions -m32

453.povray: -march=barcelona -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -INLINE:aggressive=on

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -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) -O2 -OPT:Ofast -OPT:ro=3  
-OPT:unroll\_size=256

434.zeusmp: -Mvect=cachesize:6291456 -fastsse -Mfprelaxed  
-Mprefetch=distance:8 -Mprefetch=t0 -Msmartalloc=huge  
-Msmartalloc=hugebss -Mipa=fast -Mipa=inline  
-tp barcelona-64 -Bstatic\_pgi

437.leslie3d: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)  
-Mipa=fast(pass 2) -Mipa=inline(pass 2)  
-Mvect=cachesize:6291456 -fastsse -Mvect=fuse  
-Msmartalloc=huge -Mprefetch=distance:8 -Mprefetch=t0  
-Mfprelaxed -tp barcelona-64 -Bstatic\_pgi

459.GemsFDTD: -march=barcelona -Ofast -LNO:fission=2 -LNO:simd=2  
-LNO:prefetch\_ahead=1 -CG:load\_exe=0 -CG:prefer\_lru\_reg=off  
-OPT:malloc\_alg=1  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT  
-L/usr/lib64 -lhugetlbfs

465.tonto: -march=barcelona -Ofast -OPT:alias=no\_f90\_pointer\_alias  
-LNO:blocking=off -CG:load\_exe=1 -IPA:plimit=525  
-OPT:malloc\_alg=1  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT  
-L/usr/lib64 -lhugetlbfs

### Benchmarks using both Fortran and C:

435.gromacs: -march=barcelona -Ofast -OPT:rsqrt=2 -OPT:malloc\_alg=1  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT  
-L/usr/lib64 -lhugetlbfs

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 21.2

PowerEdge M805 (AMD Opteron 2379 HE, 2.40 GHz)

SPECfp\_base2006 = 17.0

CPU2006 license: 55

Test date: Mar-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

## Peak Optimization Flags (Continued)

436.cactusADM: -Mvect=cachesize:6291456 -fastsse -Mconcur  
-Msmartalloc=huge -Mfprelaxed -Mipa=fast -Mipa=inline  
-tp barcelona-64 -Bstatic\_pgi

454.calculix: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)  
-Mipa=fast(pass 2) -Mipa=inline(pass 2)  
-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge  
-Mprefetch=t0 -Mpre -Mfprelaxed -tp barcelona-64  
-Bstatic\_pgi

481.wrf: -march=barcelona -Ofast -LNO:blocking=off  
-LNO:prefetch\_ahead=10 -LANG:copyinout=off  
-IPA:callee\_limit=5000 -GRA:prioritize\_by\_density=on  
-OPT:malloc\_alg=1 -m3dnow  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT  
-L/usr/lib64 -lhugetlbfs

## Peak Other Flags

C benchmarks:  
-Mipa=jobs:4(pass 2)

C++ benchmarks:

444.namd: -Mipa=jobs:4(pass 2)

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

416.gamess: No flags used

459.GemsFDTD: No flags used

465.tonto: No flags used

Benchmarks using both Fortran and C (except as noted below):  
-Mipa=jobs:4(pass 2)

435.gromacs: No flags used

481.wrf: 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.20090710.html](http://www.spec.org/cpu2006/flags/pgi72_linux_flags.20090710.html)

<http://www.spec.org/cpu2006/flags/pathscale32-flags.html>

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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 21.2

PowerEdge M805 (AMD Opteron 2379 HE, 2.40 GHz)

SPECfp\_base2006 = 17.0

**CPU2006 license:** 55

**Test date:** Mar-2009

**Test sponsor:** Dell Inc.

**Hardware Availability:** May-2009

**Tested by:** Dell Inc.

**Software Availability:** Oct-2008

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

[http://www.spec.org/cpu2006/flags/pgi72\\_linux\\_flags.20090710.xml](http://www.spec.org/cpu2006/flags/pgi72_linux_flags.20090710.xml)  
<http://www.spec.org/cpu2006/flags/pathscale32-flags.xml>  
<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.xml>

SPEC and SPECfp 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 00:08:05 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 18 May 2009.