



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®\_rate2006 = 391

PowerEdge R720 (Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp\_rate\_base2006 = 380

CPU2006 license: 55

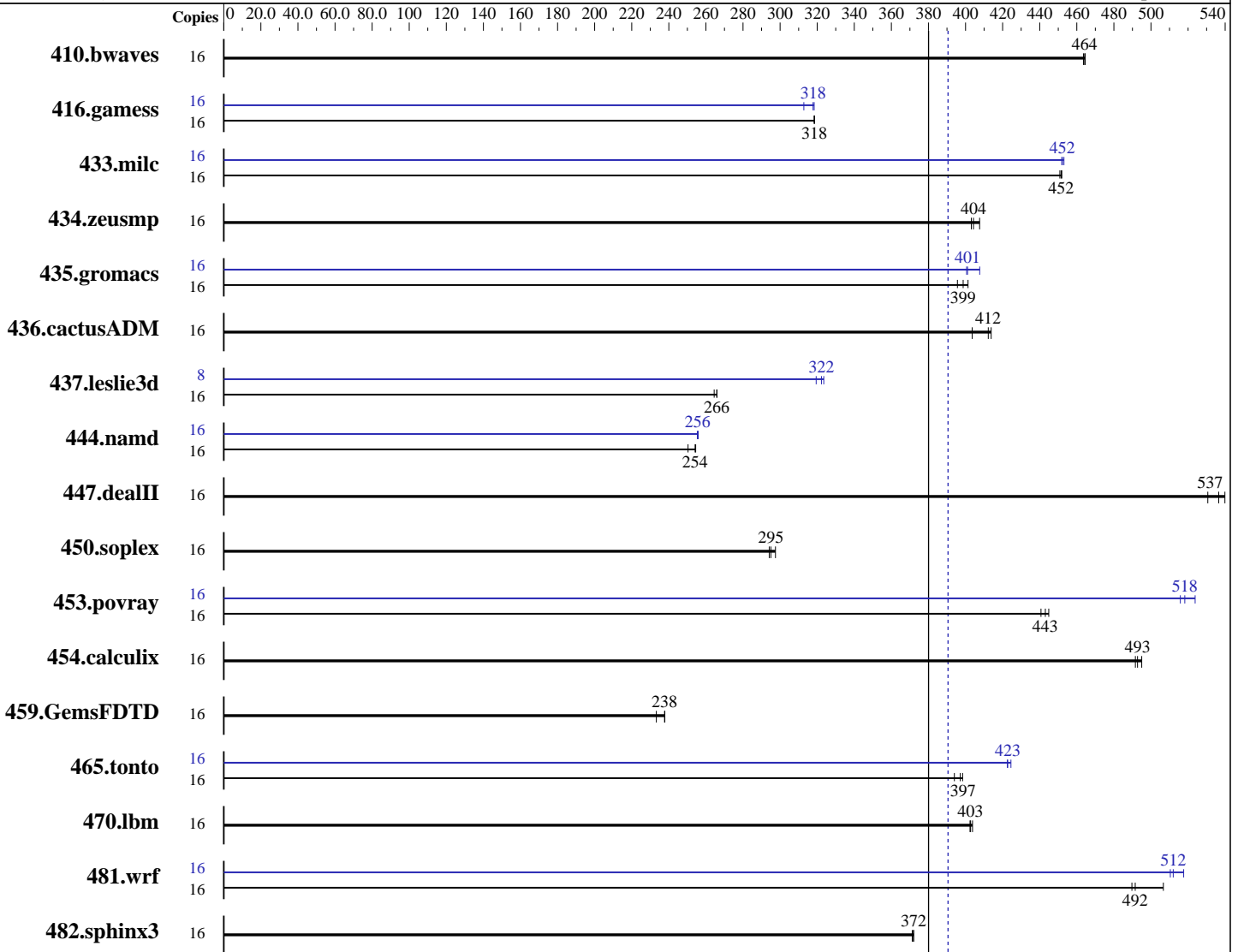
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Sep-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013



SPECfp\_rate\_base2006 = 380

SPECfp\_rate2006 = 391

### Hardware

CPU Name: Intel Xeon E5-2637 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

### Software

Operating System: SUSE Linux Enterprise Server 11 SP3 (x86\_64) 3.0.76-0.11-default  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;  
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux  
 Auto Parallel: No  
 File System: ext2  
 System State: Run level 3 (multi-user)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 391

PowerEdge R720 (Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp\_rate\_base2006 = 380

CPU2006 license: 55

Test date: Sep-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013

L3 Cache: 15 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
Disk Subsystem: 1 x 1 TB 7200 RPM SATA  
Other Hardware: None

Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	<b>468</b>	<b>464</b>	468	465	469	464	16	<b>468</b>	<b>464</b>	468	465	469	464
416.gamess	16	984	318	<b>984</b>	<b>318</b>	984	318	16	984	318	1002	313	<b>986</b>	<b>318</b>
433.milc	16	325	452	<b>325</b>	<b>452</b>	326	451	16	324	453	325	452	<b>325</b>	<b>452</b>
434.zeusmp	16	361	403	357	408	<b>360</b>	<b>404</b>	16	361	403	357	408	<b>360</b>	<b>404</b>
435.gromacs	16	285	401	289	396	<b>287</b>	<b>399</b>	16	280	408	285	401	<b>285</b>	<b>401</b>
436.cactusADM	16	<b>464</b>	<b>412</b>	474	404	462	414	16	<b>464</b>	<b>412</b>	474	404	462	414
437.leslie3d	16	569	264	<b>566</b>	<b>266</b>	566	266	8	<b>233</b>	<b>322</b>	235	319	232	324
444.namd	16	<b>505</b>	<b>254</b>	504	254	513	250	16	502	256	503	255	<b>502</b>	<b>256</b>
447.dealII	16	339	540	<b>341</b>	<b>537</b>	345	531	16	339	540	<b>341</b>	<b>537</b>	345	531
450.soplex	16	449	298	<b>452</b>	<b>295</b>	454	294	16	449	298	<b>452</b>	<b>295</b>	454	294
453.povray	16	193	441	<b>192</b>	<b>443</b>	191	445	16	165	516	<b>164</b>	<b>518</b>	163	524
454.calculix	16	267	495	<b>268</b>	<b>493</b>	269	492	16	267	495	<b>268</b>	<b>493</b>	269	492
459.GemsFDTD	16	<b>714</b>	<b>238</b>	728	233	714	238	16	<b>714</b>	<b>238</b>	728	233	714	238
465.tonto	16	<b>396</b>	<b>397</b>	395	398	400	394	16	371	424	373	423	<b>372</b>	<b>423</b>
470.lbm	16	<b>546</b>	<b>403</b>	546	402	544	404	16	<b>546</b>	<b>403</b>	546	402	544	404
481.wrf	16	353	507	365	490	<b>364</b>	<b>492</b>	16	345	518	350	510	<b>349</b>	<b>512</b>
482.sphinx3	16	838	372	<b>838</b>	<b>372</b>	840	371	16	838	372	<b>838</b>	<b>372</b>	840	371

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS settings:  
Virtualization Technology disabled  
Execute Disable disabled

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 391

PowerEdge R720 (Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp\_rate\_base2006 = 380

CPU2006 license: 55

Test date: Sep-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013

## Platform Notes (Continued)

```

Logical Processor enabled
System Profile set to Performance
Sysinfo program /root/cpu2006.1.2.ic13/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux Tue Sep 10 19:34:16 2013

```

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: <http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2637 v2 @ 3.50GHz
 2 "physical id"s (chips)
 16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
  cpu cores : 4
  siblings  : 8
  physical 0: cores 1 2 3 4
  physical 1: cores 1 2 3 4
cache size : 15360 KB

```

```

From /proc/meminfo
MemTotal:      264601764 kB
HugePages_Total:    0
Hugepagesize:   2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)

```

```

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 3

```

```

uname -a:
Linux linux 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013 (ccab990)
x86_64 x86_64 x86_64 GNU/Linux

```

```

run-level 3 Sep 10 10:31 last=S

```

```

SPEC is set to: /root/cpu2006.1.2.ic13
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext2  817G  25G  792G   4% /

```

```

Additional information from dmidecode:
BIOS Dell Inc. 2.0.19 08/29/2013
Memory:
8x 00AD00B300AD HMT42GR7MFR4C-RD 16 GB 1866 MHz
8x 00AD04B300AD HMT42GR7AFR4C-RD 16 GB 1866 MHz
Continued on next page

```



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 391

PowerEdge R720 (Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp\_rate\_base2006 = 380

CPU2006 license: 55

Test date: Sep-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013

## Platform Notes (Continued)

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:

LD\_LIBRARY\_PATH = "/root/cpu2006.1.2.ic13/libs/32:/root/cpu2006.1.2.ic13/libs/64:/root/cpu2006.1.2.ic13/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent\_hugepage/enabled

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop\_caches

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

## Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## 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 -nofor\_main  
 436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
 437.leslie3d: -DSPEC\_CPU\_LP64  
 444.namd: -DSPEC\_CPU\_LP64  
 447.dealII: -DSPEC\_CPU\_LP64  
 450.soplex: -DSPEC\_CPU\_LP64  
 453.povray: -DSPEC\_CPU\_LP64  
 454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
 459.GemsFDTD: -DSPEC\_CPU\_LP64

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 391

PowerEdge R720 (Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp\_rate\_base2006 = 380

CPU2006 license: 55

Test date: Sep-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013

## Base Portability Flags (Continued)

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:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

## Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

Same as Base Portability Flags



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 391

PowerEdge R720 (Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp\_rate\_base2006 = 380

CPU2006 license: 55

Test date: Sep-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013

## Peak Optimization Flags

### C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -static -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

### C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -fno-alias -auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

### Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -opt-prefetch -static -auto-ilp32

436.cactusADM: basepeak = yes

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 391

PowerEdge R720 (Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp\_rate\_base2006 = 380

CPU2006 license: 55

Test date: Sep-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013

## Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>  
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>  
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.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 v1.2.  
Report generated on Thu Jul 24 18:40:29 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 22 October 2013.