



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp<sup>®</sup>2006 = 91.0

PowerEdge R620 (Intel Xeon E5-2690, 2.90 GHz)

SPECfp\_base2006 = 85.9

CPU2006 license: 55

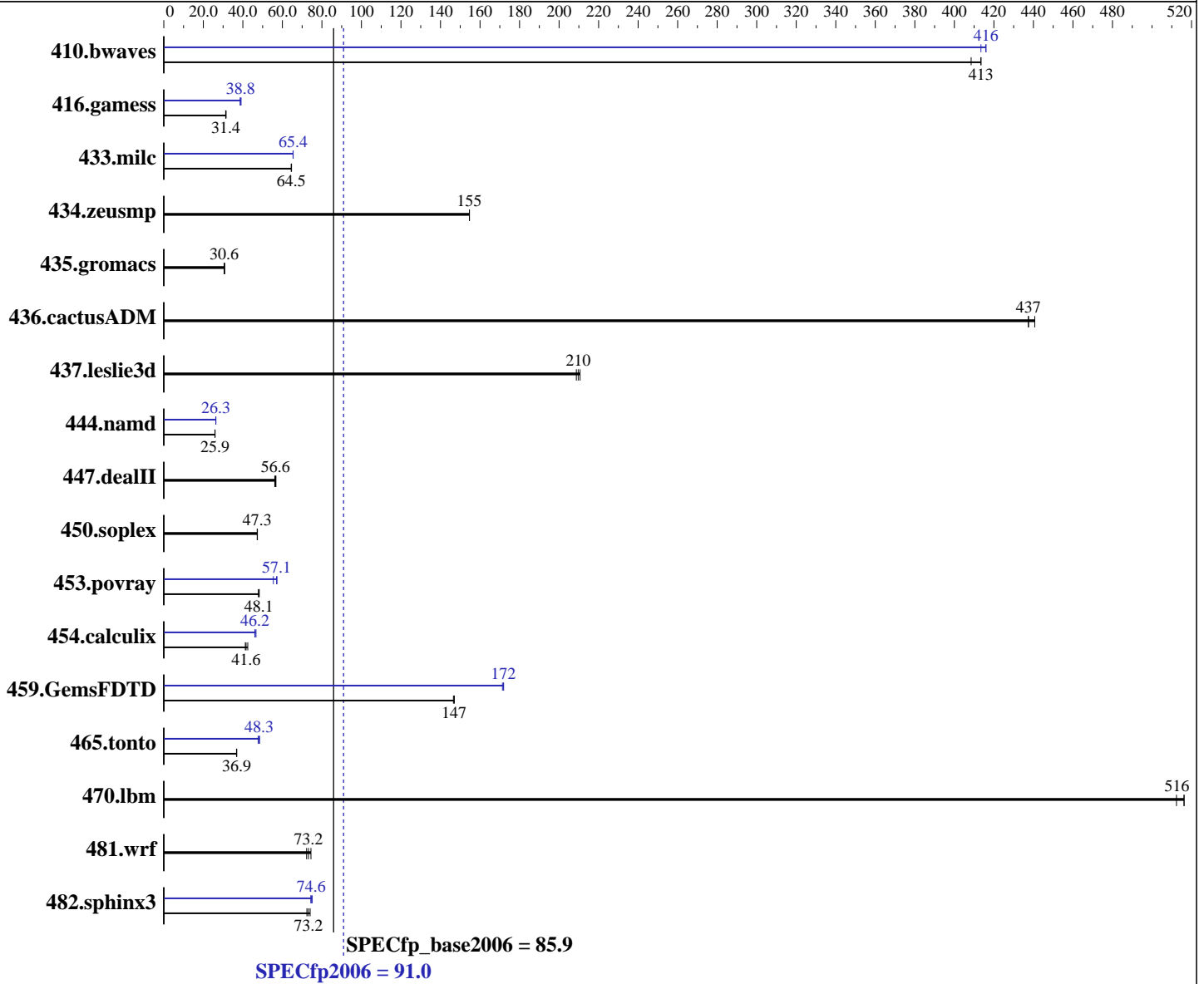
Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012



## Hardware

CPU Name: Intel Xeon E5-2690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 2900  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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 (x86\_64)  
 3.0.13-0.9-default  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.0

PowerEdge R620 (Intel Xeon E5-2690, 2.90 GHz)

SPECfp\_base2006 = 85.9

CPU2006 license: 55

Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

L3 Cache: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 2 x 146 GB 15000 RPM SAS  
 Other Hardware: None

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

## Results Table

| Benchmark     | Base        |             |            |             |             |             | Peak        |             |            |             |             |             |
|---------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|
|               | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       |
| 410.bwaves    | 33.3        | 408         | 32.9       | 413         | <u>32.9</u> | <u>413</u>  | <u>32.7</u> | <u>416</u>  | 32.7       | 416         | 32.9        | 413         |
| 416.gamess    | 622         | 31.5        | <u>624</u> | <u>31.4</u> | 625         | 31.3        | 507         | 38.6        | <u>505</u> | <u>38.8</u> | 501         | 39.1        |
| 433.milc      | <u>142</u>  | <u>64.5</u> | 142        | 64.6        | 142         | 64.5        | <u>140</u>  | <u>65.4</u> | 140        | 65.5        | 140         | 65.4        |
| 434.zeusmp    | 58.8        | 155         | 58.8       | 155         | <u>58.8</u> | <u>155</u>  | 58.8        | 155         | 58.8       | 155         | <u>58.8</u> | <u>155</u>  |
| 435.gromacs   | 232         | 30.8        | <u>233</u> | <u>30.6</u> | 234         | 30.5        | 232         | 30.8        | <u>233</u> | <u>30.6</u> | 234         | 30.5        |
| 436.cactusADM | 27.1        | 441         | 27.3       | 437         | <u>27.3</u> | <u>437</u>  | 27.1        | 441         | 27.3       | 437         | <u>27.3</u> | <u>437</u>  |
| 437.leslie3d  | 44.6        | 211         | 45.0       | 209         | <u>44.8</u> | <u>210</u>  | 44.6        | 211         | 45.0       | 209         | <u>44.8</u> | <u>210</u>  |
| 444.namd      | 309         | 25.9        | 310        | 25.9        | <u>310</u>  | <u>25.9</u> | 304         | 26.3        | <u>305</u> | <u>26.3</u> | 305         | 26.3        |
| 447.dealII    | 202         | 56.7        | 204        | 56.1        | <u>202</u>  | <u>56.6</u> | 202         | 56.7        | 204        | 56.1        | <u>202</u>  | <u>56.6</u> |
| 450.soplex    | <u>176</u>  | <u>47.3</u> | 176        | 47.4        | 176         | 47.3        | <u>176</u>  | <u>47.3</u> | 176        | 47.4        | 176         | 47.3        |
| 453.povray    | 110         | 48.3        | <u>111</u> | <u>48.1</u> | 111         | 47.9        | <u>93.2</u> | <u>57.1</u> | 92.9       | 57.3        | 96.0        | 55.4        |
| 454.calculix  | 194         | 42.5        | <u>198</u> | <u>41.6</u> | 200         | 41.2        | 177         | 46.7        | 179        | 46.1        | <u>179</u>  | <u>46.2</u> |
| 459.GemsFDTD  | 72.4        | 147         | 72.2       | 147         | <u>72.2</u> | <u>147</u>  | 61.9        | 171         | 61.7       | 172         | <u>61.7</u> | <u>172</u>  |
| 465.tonto     | <u>267</u>  | <u>36.9</u> | 268        | 36.8        | 267         | 36.9        | <u>204</u>  | <u>48.3</u> | 203        | 48.5        | 206         | 47.7        |
| 470.lbm       | <u>26.6</u> | <u>516</u>  | 26.6       | 516         | 26.8        | 512         | <u>26.6</u> | <u>516</u>  | 26.6       | 516         | 26.8        | 512         |
| 481.wrf       | <u>153</u>  | <u>73.2</u> | 155        | 72.2        | 150         | 74.5        | <u>153</u>  | <u>73.2</u> | 155        | 72.2        | 150         | 74.5        |
| 482.sphinx3   | 269         | 72.4        | 263        | 74.0        | <u>266</u>  | <u>73.2</u> | 262         | 74.4        | 259        | 75.1        | <u>261</u>  | <u>74.6</u> |

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

## Operating System Notes

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

## Platform Notes

System Profile set to Performance in BIOS  
 Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on unsvr Mon Feb 6 16:23:44 2012

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.0

PowerEdge R620 (Intel Xeon E5-2690, 2.90 GHz)

SPECfp\_base2006 = 85.9

CPU2006 license: 55

Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

## Platform Notes (Continued)

```

model name : Intel(R) Xeon(R) CPU E5-2690 0 @ 2.90GHz
  2 "physical id"s (chips)
  32 "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 : 8
  siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

```

```

From /proc/meminfo
MemTotal:      132089856 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 = 2

```

```

uname -a:
Linux unsvr 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012 (54ddfaf)
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Feb 6 10:51 last=S

```

SPEC is set to: /root/CPU2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext3  265G   66G  185G  27% /

```

Additional information from dmidecode:

(End of data from sysinfo program)

## General Notes

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

```

KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/CPU2006-1.2/libs/32:/root/CPU2006-1.2/libs/64"
OMP_NUM_THREADS = "16"

```

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

Transparent Huge Pages disabled with:

```

echo never > /sys/kernel/mm/transparent_hugepage/enabled

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.0

PowerEdge R620 (Intel Xeon E5-2690, 2.90 GHz)

SPECfp\_base2006 = 85.9

CPU2006 license: 55

Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

## General Notes (Continued)

Filesystem page cache cleared with:  
echo 1> /proc/sys/vm/drop\_caches  
The Dell PowerEdge R620 and  
the Bull NovaScale R440 F3 models are electronically equivalent.  
The results have been measured on a Dell PowerEdge R620 model.

## 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.deall: -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  
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 -parallel -opt-prefetch  
-ansi-alias

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.0

PowerEdge R620 (Intel Xeon E5-2690, 2.90 GHz)

SPECfp\_base2006 = 85.9

CPU2006 license: 55

Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

## Base Optimization Flags (Continued)

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

## 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

## 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) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

C++ benchmarks:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.0

PowerEdge R620 (Intel Xeon E5-2690, 2.90 GHz)

SPECfp\_base2006 = 85.9

CPU2006 license: 55

Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

## Peak Optimization Flags (Continued)

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealII: 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) -prof-use(pass 2) -unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

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: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120313.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120313.xml>



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.0

PowerEdge R620 (Intel Xeon E5-2690, 2.90 GHz)

SPECfp\_base2006 = 85.9

CPU2006 license: 55

Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012

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 03:48:29 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 13 March 2012.