



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Bull SAS

SPECfp®2006 = 43.3

NovaScale R440 F2 (Intel Xeon X5650, 2.66 GHz)

SPECfp\_base2006 = 40.2

CPU2006 license: 20

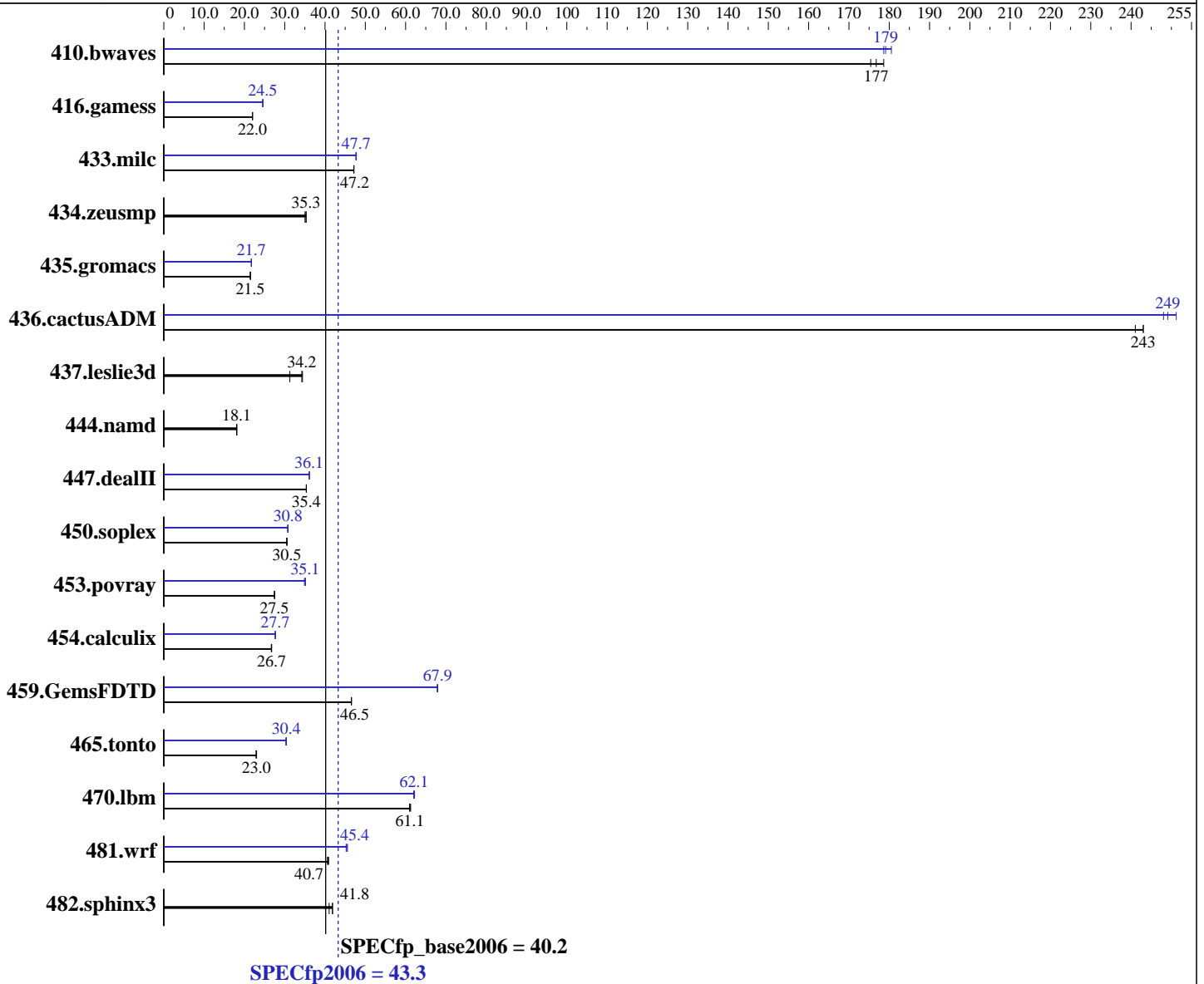
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Jun-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon X5650  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.06 GHz  
 CPU MHz: 2667  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 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), Kernel 2.6.27.19-5-smp  
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l\_cproc\_p\_11.1.064, l\_cprof\_p\_11.1.064  
 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

## Bull SAS

SPECfp2006 = 43.3

NovaScale R440 F2 (Intel Xeon X5650, 2.66 GHz)

SPECfp\_base2006 = 40.2

CPU2006 license: 20

Test date: Jun-2010

Test sponsor: Bull SAS

Hardware Availability: Mar-2010

Tested by: Dell Inc.

Software Availability: Dec-2009

L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB DDR3-1333 DR RDIMM, CL9, ECC)  
 Disk Subsystem: 1 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    | 77.5              | 175                | <b><u>76.9</u></b> | <b><u>177</u></b>  | 76.1               | 179                | 75.3              | 181                | <b><u>75.9</u></b> | <b><u>179</u></b>  | 76.1              | 179                |
| 416.gamess    | <b><u>889</u></b> | <b><u>22.0</u></b> | 889                | 22.0               | 891                | 22.0               | 796               | 24.6               | <b><u>798</u></b>  | <b><u>24.5</u></b> | 798               | 24.5               |
| 433.milc      | 195               | 47.1               | 195                | 47.2               | <b><u>195</u></b>  | <b><u>47.2</u></b> | 193               | 47.7               | <b><u>192</u></b>  | <b><u>47.7</u></b> | 192               | 47.8               |
| 434.zeusmp    | 258               | 35.3               | <b><u>258</u></b>  | <b><u>35.3</u></b> | 260                | 35.0               | 258               | 35.3               | <b><u>258</u></b>  | <b><u>35.3</u></b> | 260               | 35.0               |
| 435.gromacs   | <b><u>332</u></b> | <b><u>21.5</u></b> | 333                | 21.5               | 332                | 21.5               | 328               | 21.7               | <b><u>328</u></b>  | <b><u>21.7</u></b> | 329               | 21.7               |
| 436.cactusADM | 49.6              | 241                | 49.2               | 243                | <b><u>49.2</u></b> | <b><u>243</u></b>  | 47.6              | 251                | <b><u>48.0</u></b> | <b><u>249</u></b>  | 48.2              | 248                |
| 437.leslie3d  | 273               | 34.4               | 301                | 31.3               | <b><u>275</u></b>  | <b><u>34.2</u></b> | 273               | 34.4               | 301                | 31.3               | <b><u>275</u></b> | <b><u>34.2</u></b> |
| 444.namd      | 444               | 18.1               | <b><u>443</u></b>  | <b><u>18.1</u></b> | 443                | 18.1               | 444               | 18.1               | <b><u>443</u></b>  | <b><u>18.1</u></b> | 443               | 18.1               |
| 447.dealII    | <b><u>324</u></b> | <b><u>35.4</u></b> | 323                | 35.4               | 324                | 35.3               | 317               | 36.1               | <b><u>317</u></b>  | <b><u>36.1</u></b> | 317               | 36.1               |
| 450.soplex    | <b><u>273</u></b> | <b><u>30.5</u></b> | 273                | 30.5               | 273                | 30.6               | 271               | 30.7               | 271                | 30.8               | <b><u>271</u></b> | <b><u>30.8</u></b> |
| 453.povray    | 194               | 27.4               | 193                | 27.5               | <b><u>194</u></b>  | <b><u>27.5</u></b> | <b><u>152</u></b> | <b><u>35.1</u></b> | 151                | 35.2               | 152               | 34.9               |
| 454.calculix  | 308               | 26.8               | 309                | 26.7               | <b><u>309</u></b>  | <b><u>26.7</u></b> | 298               | 27.7               | 299                | 27.6               | <b><u>298</u></b> | <b><u>27.7</u></b> |
| 459.GemsFDTD  | <b><u>228</u></b> | <b><u>46.5</u></b> | 228                | 46.5               | 228                | 46.6               | 156               | 67.8               | 156                | 67.9               | <b><u>156</u></b> | <b><u>67.9</u></b> |
| 465.tonto     | <b><u>429</u></b> | <b><u>23.0</u></b> | 427                | 23.0               | 430                | 22.9               | 323               | 30.4               | 325                | 30.3               | <b><u>324</u></b> | <b><u>30.4</u></b> |
| 470.lbm       | 224               | 61.3               | 225                | 61.0               | <b><u>225</u></b>  | <b><u>61.1</u></b> | 222               | 62.0               | 221                | 62.2               | <b><u>221</u></b> | <b><u>62.1</u></b> |
| 481.wrf       | 275               | 40.6               | 273                | 40.9               | <b><u>274</u></b>  | <b><u>40.7</u></b> | <b><u>246</u></b> | <b><u>45.4</u></b> | 245                | 45.6               | 247               | 45.2               |
| 482.sphinx3   | 475               | 41.0               | 465                | 41.9               | <b><u>466</u></b>  | <b><u>41.8</u></b> | 475               | 41.0               | 465                | 41.9               | <b><u>466</u></b> | <b><u>41.8</u></b> |

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

## Platform Notes

BIOS Settings:  
 Power Management = Maximum Performance (Default = Active Power Controller)  
 Data Reuse = Disabled (Default = Enabled)

## General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502  
 OMP\_NUM\_THREADS set to number of cores  
 KMP\_AFFINITY set to granularity=fine,scatter

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Bull SAS**

**SPECfp2006 = 43.3**

NovaScale R440 F2 (Intel Xeon X5650, 2.66 GHz)

**SPECfp\_base2006 = 40.2**

**CPU2006 license:** 20  
**Test sponsor:** Bull SAS  
**Tested by:** Dell Inc.

**Test date:** Jun-2010  
**Hardware Availability:** Mar-2010  
**Software Availability:** Dec-2009

## General Notes (Continued)

KMP\_STACKSIZE set to 200M  
The Dell PowerEdge R610 and  
the Bull NovaScale R440 F2 models are electronically equivalent.  
The results have been measured on a Dell PowerEdge R610 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.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  
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:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Bull SAS**

**SPECfp2006 = 43.3**

NovaScale R440 F2 (Intel Xeon X5650, 2.66 GHz)

**SPECfp\_base2006 = 40.2**

**CPU2006 license:** 20

**Test date:** Jun-2010

**Test sponsor:** Bull SAS

**Hardware Availability:** Mar-2010

**Tested by:** Dell Inc.

**Software Availability:** Dec-2009

## Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

## 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: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-ansi-alias`

470.lbm: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-parallel -ansi-alias -auto-ilp32`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealIII: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias -scalar-rep- -auto-ilp32`

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Bull SAS**

**SPECfp2006 = 43.3**

NovaScale R440 F2 (Intel Xeon X5650, 2.66 GHz)

**SPECfp\_base2006 = 40.2**

**CPU2006 license:** 20

**Test date:** Jun-2010

**Test sponsor:** Bull SAS

**Hardware Availability:** Mar-2010

**Tested by:** Dell Inc.

**Software Availability:** Dec-2009

## Peak Optimization Flags (Continued)

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-opt-malloc-options=3 -auto-ilp32

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -Ob0 -opt-prefetch -parallel

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

### Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32

436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.html>



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Bull SAS**

**SPECfp2006 = 43.3**

NovaScale R440 F2 (Intel Xeon X5650, 2.66 GHz)

**SPECfp\_base2006 = 40.2**

**CPU2006 license:** 20

**Test sponsor:** Bull SAS

**Tested by:** Dell Inc.

**Test date:** Jun-2010

**Hardware Availability:** Mar-2010

**Software Availability:** Dec-2009

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.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 11:12:31 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 20 July 2010.