



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

SPECfp<sup>®</sup>2006 = 14.2

### Bull Escala PL250R+ (2100 MHz, 1 CPU)

SPECfp\_base2006 = 12.3

CPU2006 license: 20

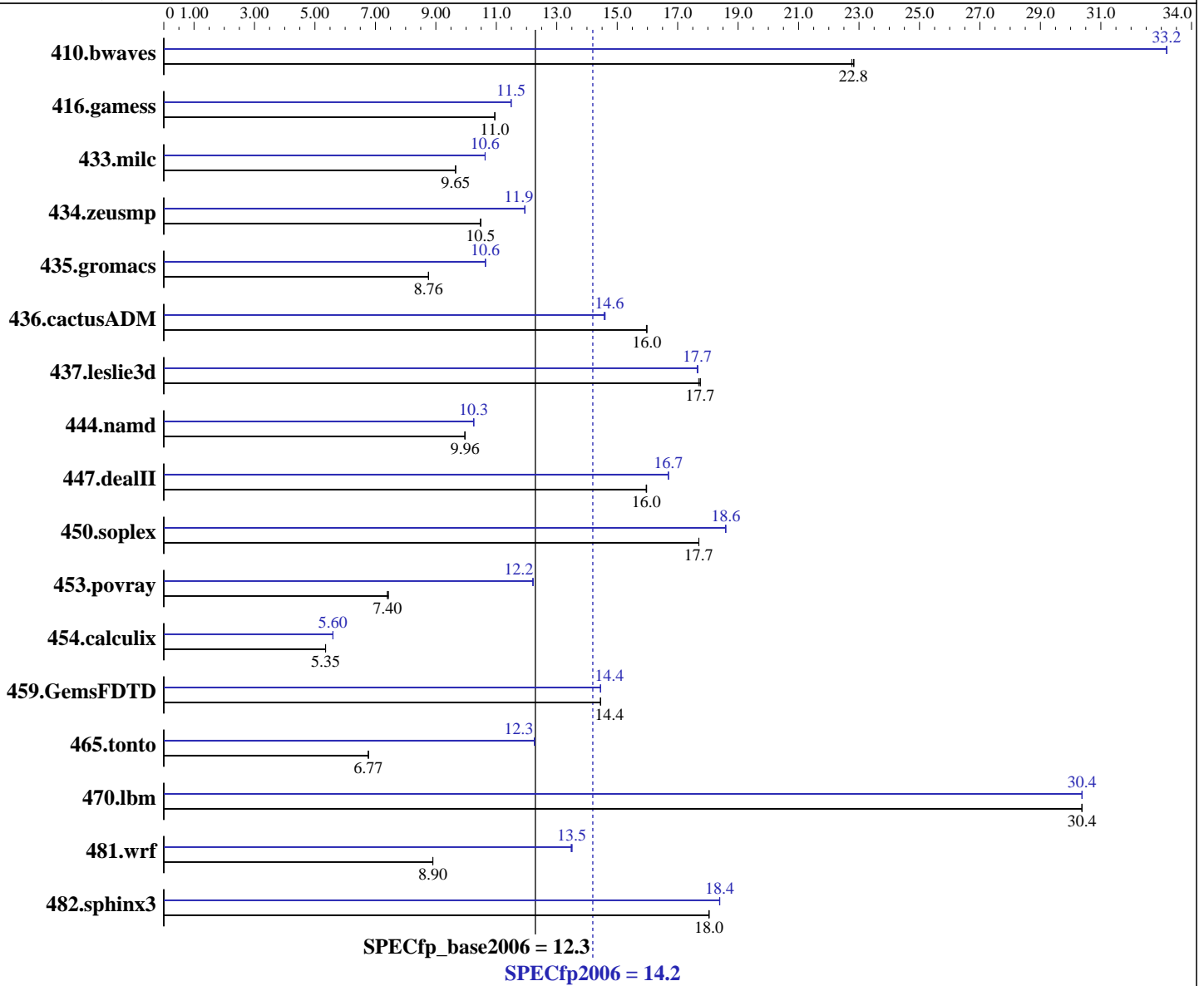
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jan-2007

Hardware Availability: Feb-2006

Software Availability: Dec-2006



#### Hardware

CPU Name: POWER5+  
 CPU Characteristics: 2100  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 1 core, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 64 KB I + 32 KB D on chip per core  
 Secondary Cache: 1920 KB I+D on chip per chip

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#### Software

Operating System: AIX 5L V5.3  
 Compiler: XL C/C++ Enterprise Edition Version 8.0 for AIX with the December 2006 PTF  
 XL Fortran Enterprise Edition Version 10.1 for AIX with the November 2006 PTF  
 Auto Parallel: No  
 File System: AIX/JFS2  
 System State: Multi-user  
 Base Pointers: 32-bit

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L3 Cache: 36 MB I+D off chip per chip  
Other Cache: None  
Memory: 32 GB (8x4 GB)  
Disk Subsystem: 1x73 GB SCSI, 15K RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: ESSL 4.2.0.4

## Results Table

| Benchmark     | Base       |             |             |             |             |             | Peak       |             |             |             |             |             |
|---------------|------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|
|               | Seconds    | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       |
| 410.bwaves    | 595        | 22.8        | 597         | 22.8        | <b>596</b>  | <b>22.8</b> | 410        | 33.2        | 410         | 33.2        | <b>410</b>  | <b>33.2</b> |
| 416.gamess    | 1788       | 11.0        | <b>1788</b> | <b>11.0</b> | 1788        | 11.0        | 1704       | 11.5        | 1704        | 11.5        | <b>1704</b> | <b>11.5</b> |
| 433.milc      | 951        | 9.65        | <b>951</b>  | <b>9.65</b> | 951         | 9.65        | 864        | 10.6        | <b>864</b>  | <b>10.6</b> | 864         | 10.6        |
| 434.zeusmp    | <b>868</b> | <b>10.5</b> | 869         | 10.5        | 868         | 10.5        | <b>762</b> | <b>11.9</b> | 762         | 11.9        | 762         | 11.9        |
| 435.gromacs   | 815        | 8.76        | <b>815</b>  | <b>8.76</b> | 815         | 8.76        | 672        | 10.6        | <b>672</b>  | <b>10.6</b> | 670         | 10.6        |
| 436.cactusADM | 748        | 16.0        | <b>748</b>  | <b>16.0</b> | 748         | 16.0        | <b>820</b> | <b>14.6</b> | 818         | 14.6        | 820         | 14.6        |
| 437.leslie3d  | 530        | 17.8        | <b>530</b>  | <b>17.7</b> | 531         | 17.7        | 532        | 17.7        | <b>533</b>  | <b>17.7</b> | 533         | 17.6        |
| 444.namd      | 805        | 9.96        | 805         | 9.97        | <b>805</b>  | <b>9.96</b> | <b>782</b> | <b>10.3</b> | 782         | 10.3        | 782         | 10.3        |
| 447.dealII    | 717        | 16.0        | <b>717</b>  | <b>16.0</b> | 716         | 16.0        | <b>685</b> | <b>16.7</b> | 685         | 16.7        | 685         | 16.7        |
| 450.soplex    | 471        | 17.7        | 471         | 17.7        | <b>471</b>  | <b>17.7</b> | <b>449</b> | <b>18.6</b> | 449         | 18.6        | 449         | 18.6        |
| 453.povray    | 716        | 7.43        | <b>719</b>  | <b>7.40</b> | 719         | 7.40        | 435        | 12.2        | 436         | 12.2        | <b>436</b>  | <b>12.2</b> |
| 454.calculix  | 1542       | 5.35        | <b>1542</b> | <b>5.35</b> | 1541        | 5.35        | 1474       | 5.60        | 1475        | 5.59        | <b>1474</b> | <b>5.60</b> |
| 459.GemsFDTD  | 734        | 14.4        | 734         | 14.4        | <b>734</b>  | <b>14.4</b> | 734        | 14.4        | 734         | 14.4        | <b>734</b>  | <b>14.4</b> |
| 465.tonto     | 1454       | 6.77        | <b>1454</b> | <b>6.77</b> | 1454        | 6.77        | 802        | 12.3        | 803         | 12.3        | <b>803</b>  | <b>12.3</b> |
| 470.lbm       | <b>452</b> | <b>30.4</b> | 452         | 30.4        | 452         | 30.4        | 452        | 30.4        | 452         | 30.4        | <b>452</b>  | <b>30.4</b> |
| 481.wrf       | 1255       | 8.90        | 1255        | 8.90        | <b>1255</b> | <b>8.90</b> | 827        | 13.5        | <b>828</b>  | <b>13.5</b> | 829         | 13.5        |
| 482.sphinx3   | 1080       | 18.0        | 1081        | 18.0        | <b>1081</b> | <b>18.0</b> | 1060       | 18.4        | <b>1060</b> | <b>18.4</b> | 1060        | 18.4        |

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

## Operating System Notes

ulimits set to unlimited

Large page mode was set as follows:

```
vmo -r -o lgpg_regions=800 -o lgpg_size=16777216
```

1 core was deconfigured and SMT disabled using the AIX commands

```
smtctl -m off -w boot
```

```
bosboot -aD
```

```
shutdown -rF
```

```
drmgr -r -c cpu
```



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**CPU2006 license:** 20

**Test sponsor:** Bull SAS

**Tested by:** Bull SAS

**Test date:** Jan-2007

**Hardware Availability:** Feb-2006

**Software Availability:** Dec-2006

## Base Compiler Invocation

C benchmarks:

`/usr/vac/bin/xlc`

C++ benchmarks:

`/usr/vacpp/bin/xlC`

Fortran benchmarks:

`/usr/bin/xlf95`

Benchmarks using both Fortran and C:

`/usr/vac/bin/xlc /usr/bin/xlf95`

## Base Portability Flags

410.bwaves: `-qfixed`  
416.gamess: `-qfixed`  
434.zeusmp: `-qfixed`  
435.gromacs: `-qfixed -qextname`  
436.cactusADM: `-qfixed -qextname`  
437.leslie3d: `-qfixed`  
454.calculix: `-qfixed -qextname`  
481.wrf: `-DSPEC_CPU_AIX -DNOUNDERSCORE`  
482.sphinx3: `-qchars=signed`

## Base Optimization Flags

C benchmarks:

`-qlanglvl=extc99 -O5 -qlargepage -D_ILS_MACROS -qipa=noobject  
-blpdata -qipa=threads`

C++ benchmarks:

`-O5 -qlargepage -D_ILS_MACROS -qrtti=all -qipa=noobject -blpdata  
-qipa=threads`

Fortran benchmarks:

`-O5 -qlargepage -qsmallstack=dynlenonheap -qipa=noobject -blpdata  
-qipa=threads`

Benchmarks using both Fortran and C:

`-qlanglvl=extc99 -O5 -qlargepage -D_ILS_MACROS  
-qsmallstack=dynlenonheap -qipa=noobject -blpdata -qipa=threads`



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## Base Other Flags

C benchmarks:  
-bmaxdata:0x40000000 -qsuppress=1500-036

C++ benchmarks:  
-bmaxdata:0x50000000 -qsuppress=1500-036

Fortran benchmarks:  
-bmaxdata:0x50000000 -qalias=nostd -qalias\_size=200000000  
-qsuppress=cmpmsg:1500-010 -qsuppress=1500-036

Benchmarks using both Fortran and C:  
-bmaxdata:0x50000000 -qalias=nostd -qalias\_size=200000000  
-qsuppress=cmpmsg:1500-010 -qsuppress=1500-036

## Peak Compiler Invocation

C benchmarks:  
/usr/vac/bin/xlc

C++ benchmarks:  
/usr/vacpp/bin/xlc

Fortran benchmarks:  
/usr/bin/xlf95

Benchmarks using both Fortran and C:  
/usr/vac/bin/xlc /usr/bin/xlf95

## Peak Portability Flags

410.bwaves: -qfixed  
416.gamess: -qfixed  
434.zeusmp: -qfixed  
435.gromacs: -qfixed -qextname  
436.cactusADM: -qfixed -qextname  
437.leslie3d: -qfixed  
454.calculix: -qfixed -qextname  
481.wrf: -DSPEC\_CPU\_AIX -DNOUNDERSCORE  
482.sphinx3: -qchars=signed

## Peak Optimization Flags

C benchmarks:

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## Peak Optimization Flags (Continued)

433.milc: -qlanglvl=extc99 -qpdf1(pass 1) -qpdf2(pass 2) -O5  
-qlargepage -D\_ILS\_MACROS -qalign=natural -qipa=noobject  
-blpdata -qipa=threads

470.lbm: -qlanglvl=extc99 -O5 -qlargepage -D\_ILS\_MACROS  
-qipa=noobject -blpdata -qipa=threads

482.sphinx3: -qlanglvl=extc99 -qpdf1(pass 1) -qpdf2(pass 2) -O4  
-qlargepage -D\_ILS\_MACROS -qipa=noobject -blpdata  
-qipa=threads

### C++ benchmarks:

444.namd: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage  
-D\_ILS\_MACROS -qipa=noobject -blpdata -qipa=threads

447.dealII: -O5 -qlargepage -D\_ILS\_MACROS -qrtti=all  
-D\_\_IBM\_FAST\_VECTOR -qipa=noobject -blpdata -qipa=threads

450.soplex: -O4 -qlargepage -D\_ILS\_MACROS -qipa=noobject -blpdata  
-qipa=threads

453.povray: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage  
-D\_ILS\_MACROS -q64 -qalign=natural -lmass -qipa=noobject  
-blpdata -qipa=threads

### Fortran benchmarks:

410.bwaves: -O5 -qlargepage -qsmallstack=dynlenonheap -qipa=noobject  
-blpdata -qipa=threads

416.gamess: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -qessl  
-lessl -qipa=noobject -blpdata -qipa=threads

434.zeusmp: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage  
-qipa=noobject -blpdata -qipa=threads

437.leslie3d: -O5 -qlargepage -qipa=noobject -blpdata -qipa=threads

459.GemsFDTD: Same as 437.leslie3d

465.tonto: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -lmass  
-qipa=noobject -blpdata -qipa=threads

### Benchmarks using both Fortran and C:

435.gromacs: -qlanglvl=extc99 -qpdf1(pass 1) -qpdf2(pass 2) -O5  
-qlargepage -D\_ILS\_MACROS -qipa=noobject -blpdata  
-qipa=threads

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## Peak Optimization Flags (Continued)

436.cactusADM: -qlanglvl=extc99 -O5 -qlargepage -D\_ILS\_MACROS  
-qipa=noobject -blpdata -qipa=threads

454.calculix: Same as 435.gromacs

481.wrf: -qlanglvl=extc99 -O5 -qlargepage -lmass  
-qsmallstack=dynlenonheap -D\_ILS\_MACROS -qipa=noobject  
-blpdata -qipa=threads

## Peak Other Flags

C benchmarks:

433.milc: -bmaxdata:0x40000000 -qsuppress=1500-036

470.lbm: -bmaxdata:0x30000000 -qsuppress=1500-036

482.sphinx3: -qfdpr -qsuppress=1500-036

C++ benchmarks:

444.namd: -qfdpr -qsuppress=1500-036

447.dealII: -bmaxdata:0x50000000 -qsuppress=1500-036

450.soplex: -bmaxdata:0x40000000 -qfdpr -qsuppress=1500-036

453.povray: -qsuppress=1500-036

Fortran benchmarks (except as noted below):

-bmaxdata:0x50000000 -qsuppress=cmpmsg:1500-010 -qsuppress=1500-036

416.gamess: -bmaxdata:0x40000000 -qalias=nostd  
-qsuppress=cmpmsg:1500-010 -qsuppress=1500-036

434.zeusmp: -bmaxdata:0x40000000 -qfdpr -qsuppress=cmpmsg:1500-010  
-qsuppress=1500-036

437.leslie3d: -qsuppress=cmpmsg:1500-010 -qsuppress=1500-036

465.tonto: -bmaxdata:0x20000000 -qalias=nostd  
-qsuppress=cmpmsg:1500-010 -qsuppress=1500-036

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

-qsuppress=cmpmsg:1500-010 -qsuppress=1500-036

436.cactusADM: -bmaxdata:0x50000000 -qsuppress=cmpmsg:1500-010  
-qsuppress=1500-036

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## Peak Other Flags (Continued)

481.wrf: -bmaxdata:0x30000000 -qsuppress=cmpmsg:1500-010  
-qsuppress=1500-036

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

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090715.15.html](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.15.html)

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

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090715.15.xml](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.15.xml)

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