SPEC® CFP2006 Result

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Bull SAS

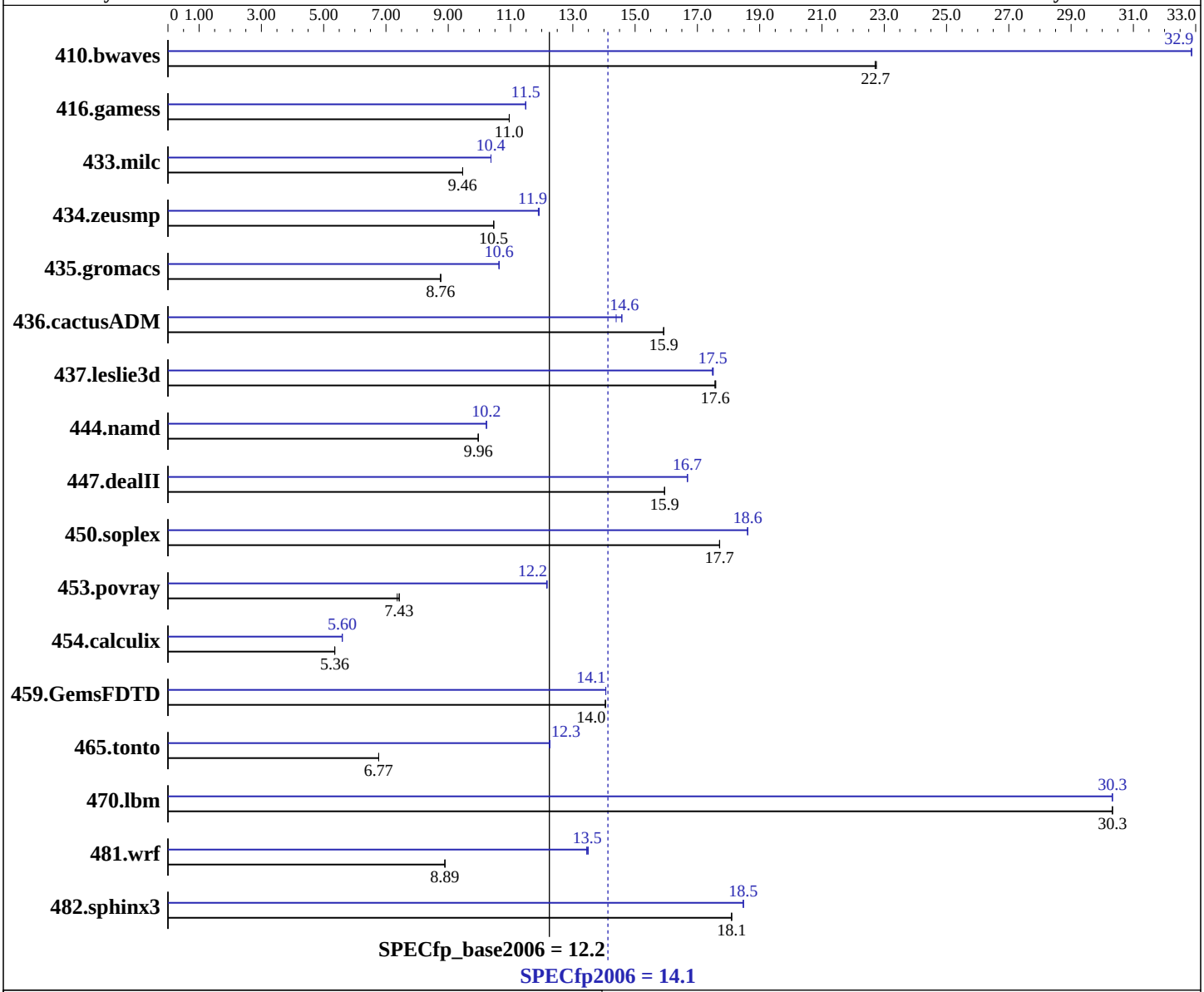
Bull Escala PL450R+ (2100 MHz, 1 CPU)

SPECfp®2006 = 14.1

SPECfp_base2006 = 12.2

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:	
CPU MHz:	2100
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 2 cores/chip
CPU(s) orderable:	1, 2 chips
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: 2x73 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	598	22.7	597	22.7	**598**	**22.7**	**413**	**32.9**	413	32.9	413	32.9
416.gamess	1787	11.0	1786	11.0	**1787**	**11.0**	**1704**	**11.5**	1704	11.5	1705	11.5
433.milc	**970**	**9.46**	970	9.46	970	9.46	885	10.4	885	10.4	**885**	**10.4**
434.zeusmp	**870**	**10.5**	870	10.5	870	10.5	**764**	**11.9**	764	11.9	765	11.9
435.gromacs	**815**	**8.76**	815	8.76	816	8.76	672	10.6	**672**	**10.6**	671	10.6
436.cactusADM	**751**	**15.9**	751	15.9	751	15.9	**820**	**14.6**	820	14.6	830	14.4
437.leslie3d	534	17.6	535	17.6	**535**	**17.6**	537	17.5	**537**	**17.5**	538	17.5
444.namd	**805**	**9.96**	805	9.97	805	9.96	784	10.2	**784**	**10.2**	784	10.2
447.dealII	**717**	**15.9**	717	15.9	717	15.9	686	16.7	686	16.7	**686**	**16.7**
450.soplex	471	17.7	**471**	**17.7**	471	17.7	448	18.6	448	18.6	**448**	**18.6**
453.povray	723	7.36	716	7.43	**716**	**7.43**	**437**	**12.2**	438	12.2	437	12.2
454.calculix	1541	5.36	1540	5.36	**1540**	**5.36**	**1474**	**5.60**	1474	5.60	1474	5.60
459.GemsFDTD	755	14.0	755	14.0	**755**	**14.0**	**755**	**14.1**	755	14.1	755	14.1
465.tonto	**1454**	**6.77**	1454	6.77	1454	6.77	803	12.3	**803**	**12.3**	802	12.3
470.lbm	453	30.3	453	30.3	**453**	**30.3**	**453**	**30.3**	453	30.3	453	30.3
481.wrf	1256	8.89	**1256**	**8.89**	1256	8.90	828	13.5	**830**	**13.5**	831	13.4
482.sphinx3	1077	18.1	1077	18.1	**1077**	**18.1**	1055	18.5	**1055**	**18.5**	1055	18.5

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

Operating System Notes

```
ulimits set to unlimited

bindprocessor command used on submit to bind each copy to a
unique processor.

Large page mode was set as follows:
vmo -r -o lgpg_regions=800 -o lgpg_size=16777216
3 cores were deconfigured and SMT disabled using the AIX commands
smtctl -m off -w boot
bosboot -aD
shutdown -rF
drmgr -r -c cpu
drmgr -r -c cpu
```

Continued on next page

Operating System Notes (Continued)

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

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
```

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:

Continued on next page

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

Continued on next page

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`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.15.xml`

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