SPEC® CFP2006 Result

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Bull SAS

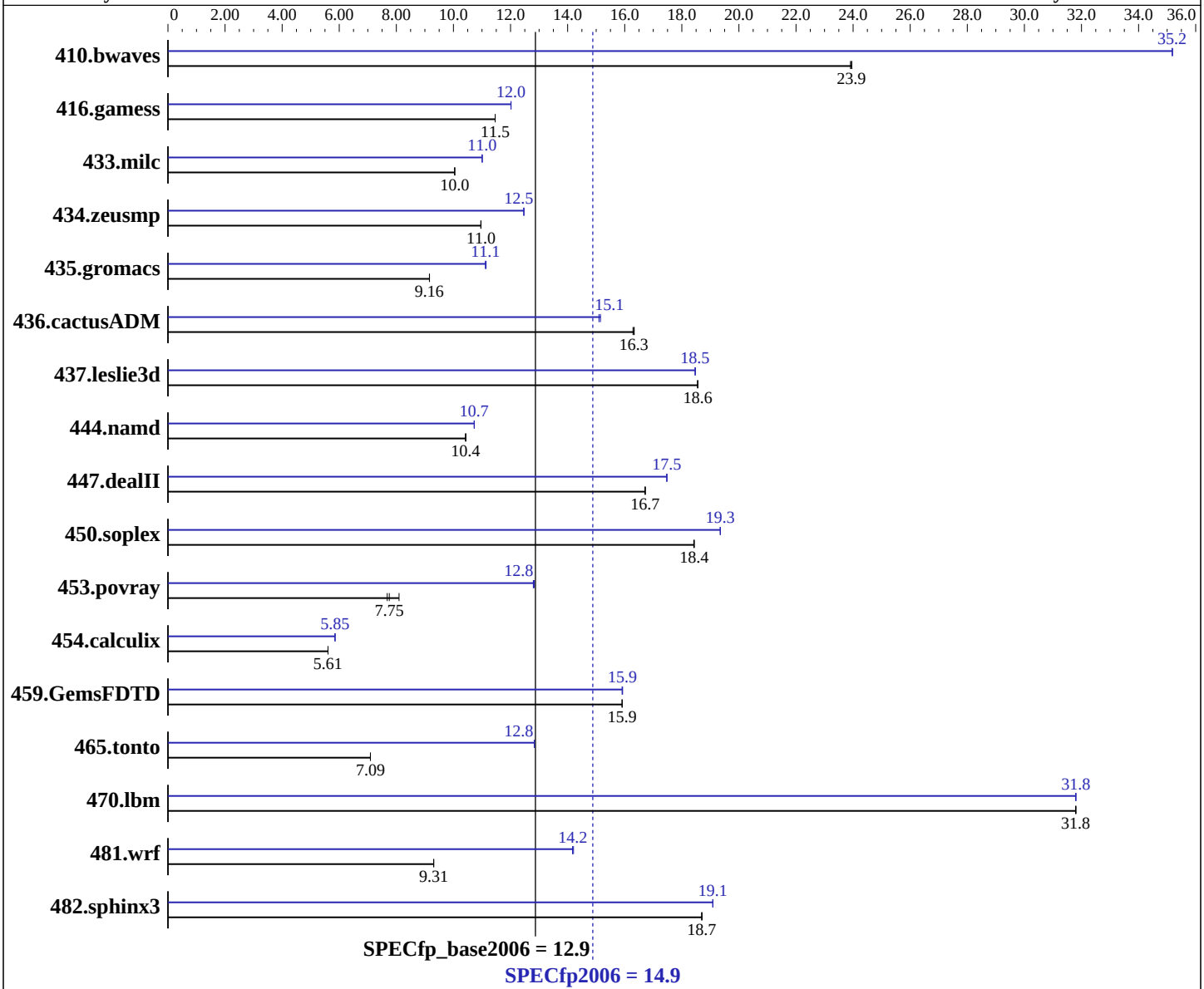
Bull Escala PL1650R+ (2200 MHz, 1 CPU)

SPECfp®2006 = 14.9

SPECfp_base2006 = 12.9

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Feb-2007
Hardware Availability: Feb-2006
Software Availability: Dec-2006



Hardware

CPU Name:	POWER5+
CPU Characteristics:	
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 2 cores/chip
CPU(s) orderable:	2, 4, 6, 8 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: 128 GB (32x4 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	567	24.0	**568**	**23.9**	568	23.9	386	35.2	**386**	**35.2**	386	35.2
416.gamess	1708	11.5	1709	11.5	**1708**	**11.5**	**1629**	**12.0**	1629	12.0	1630	12.0
433.milc	914	10.0	914	10.0	**914**	**10.0**	834	11.0	**834**	**11.0**	834	11.0
434.zeusmp	830	11.0	830	11.0	**830**	**11.0**	**730**	**12.5**	730	12.5	730	12.5
435.gromacs	780	9.16	779	9.16	**780**	**9.16**	642	11.1	**642**	**11.1**	641	11.1
436.cactusADM	732	16.3	**732**	**16.3**	734	16.3	**791**	**15.1**	789	15.2	792	15.1
437.leslie3d	506	18.6	**507**	**18.6**	507	18.6	509	18.5	**509**	**18.5**	509	18.5
444.namd	769	10.4	**769**	**10.4**	769	10.4	748	10.7	**747**	**10.7**	747	10.7
447.dealII	**684**	**16.7**	685	16.7	684	16.7	**655**	**17.5**	655	17.5	655	17.5
450.soplex	453	18.4	452	18.4	**452**	**18.4**	431	19.3	431	19.4	**431**	**19.3**
453.povray	693	7.68	**686**	**7.75**	657	8.09	**416**	**12.8**	416	12.8	415	12.8
454.calculix	1472	5.61	1471	5.61	**1471**	**5.61**	1410	5.85	**1410**	**5.85**	1409	5.85
459.GemsFDTD	667	15.9	**667**	**15.9**	667	15.9	**666**	**15.9**	666	15.9	667	15.9
465.tonto	**1387**	**7.09**	1388	7.09	1387	7.09	766	12.8	767	12.8	**767**	**12.8**
470.lbm	**432**	**31.8**	432	31.8	432	31.8	432	31.8	432	31.8	**432**	**31.8**
481.wrf	1200	9.31	1200	9.31	**1200**	**9.31**	786	14.2	788	14.2	**788**	**14.2**
482.sphinx3	1042	18.7	**1042**	**18.7**	1043	18.7	**1021**	**19.1**	1021	19.1	1021	19.1

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
15 cores were deconfigured and SMT disabled using the AIX commands
smtctl -m off -w boot
bosboot -aD
shutdown -rF
drmgr -r -c cpu (15 times)
```

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

Continued on next page

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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