SPEC® CFP2006 Result

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Bull SAS

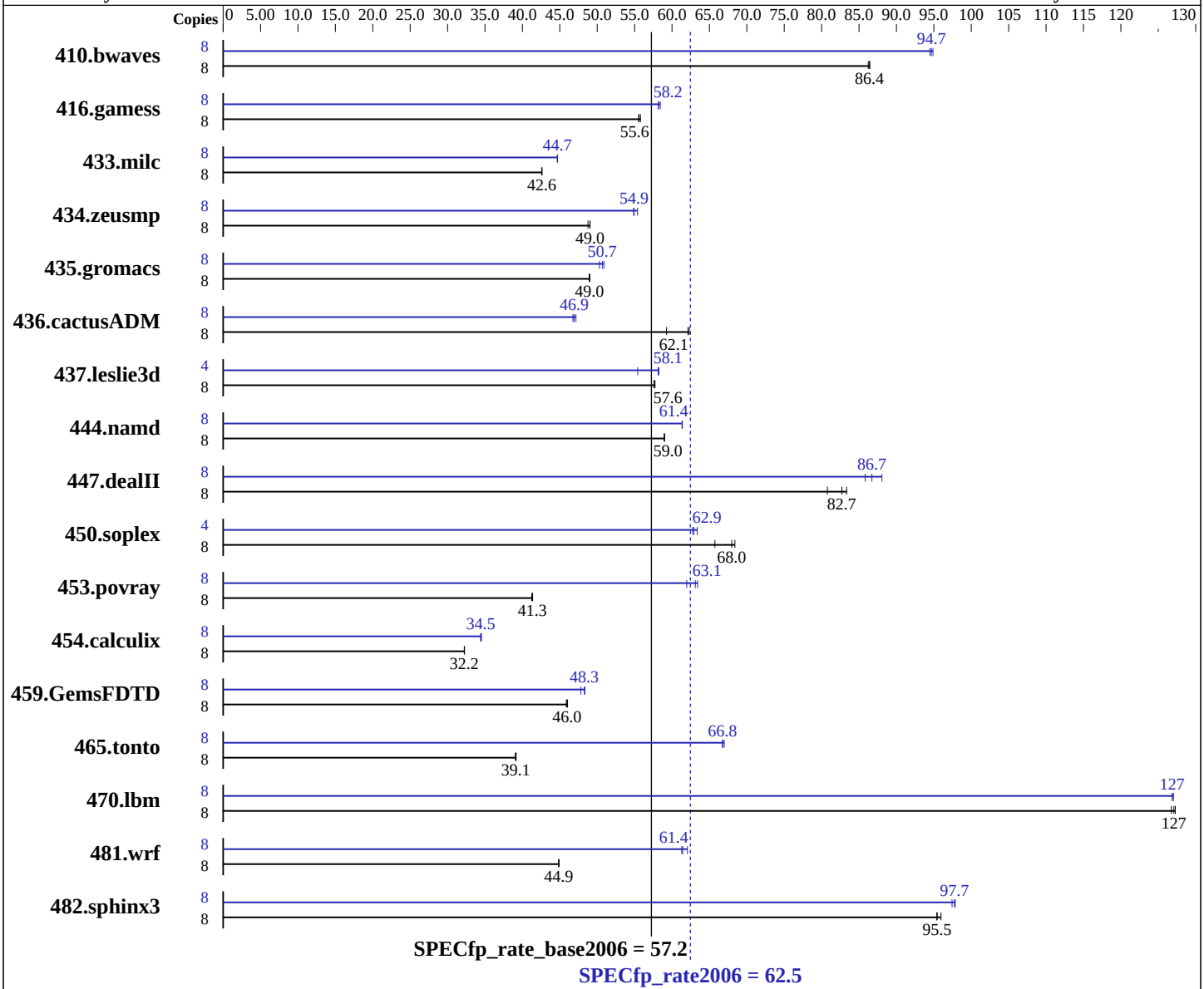
Bull Escala PL450R+ (2100 MHz, 4 CPU)

SPECfp®_rate2006 = 62.5

SPECfp_rate_base2006 = 57.2

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:	4 cores, 2 chips, 2 cores/chip, 2 threads/core
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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1261	86.2	**1258**	**86.4**	1258	86.4	8	**1148**	**94.7**	1146	94.9	1151	94.5
416.gamess	8	2808	55.8	2820	55.5	**2818**	**55.6**	8	2693	58.2	**2692**	**58.2**	2681	58.4
433.milc	8	**1724**	**42.6**	1723	42.6	1725	42.6	8	1643	44.7	**1643**	**44.7**	1645	44.7
434.zeusmp	8	**1485**	**49.0**	1484	49.0	1493	48.8	8	1314	55.4	1327	54.9	**1325**	**54.9**
435.gromacs	8	**1166**	**49.0**	1165	49.0	1167	48.9	8	1122	50.9	**1127**	**50.7**	1135	50.3
436.cactusADM	8	1534	62.3	1613	59.3	**1539**	**62.1**	8	2027	47.2	2045	46.8	**2038**	**46.9**
437.leslie3d	8	**1306**	**57.6**	1303	57.7	1306	57.6	4	646	58.2	679	55.4	**647**	**58.1**
444.namd	8	**1088**	**59.0**	1088	59.0	1088	59.0	8	1045	61.4	**1046**	**61.4**	1046	61.3
447.dealII	8	1098	83.3	1133	80.8	**1107**	**82.7**	8	1066	85.8	**1055**	**86.7**	1039	88.1
450.soplex	8	**981**	**68.0**	1015	65.7	975	68.4	4	**530**	**62.9**	532	62.8	526	63.4
453.povray	8	**1029**	**41.3**	1032	41.3	1029	41.4	8	687	62.0	**674**	**63.1**	671	63.4
454.calculix	8	**2047**	**32.2**	2046	32.3	2047	32.2	8	1912	34.5	**1915**	**34.5**	1918	34.4
459.GemsFDTD	8	1844	46.0	1850	45.9	**1847**	**46.0**	8	1755	48.4	1775	47.8	**1758**	**48.3**
465.tonto	8	**2012**	**39.1**	2010	39.2	2016	39.0	8	1180	66.7	**1179**	**66.8**	1175	67.0
470.lbm	8	864	127	867	127	**865**	**127**	8	865	127	**866**	**127**	867	127
481.wrf	8	**1991**	**44.9**	1992	44.9	1991	44.9	8	1440	62.1	1458	61.3	**1455**	**61.4**
482.sphinx3	8	**1634**	**95.5**	1625	96.0	1634	95.4	8	1600	97.4	**1595**	**97.7**	1593	97.9

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=900 -o lgpg_size=16777216
SMT was ebabled using the AIX commands
smtctl -m on -w boot
bosboot -aD
shutdown -rF
```

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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