SPEC® CFP2006 Result
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Bull SAS

Bull Escala PL1650R+ (2200 MHz, 1 CPU)

$SPECfp^{®}2006 =$ 14.9
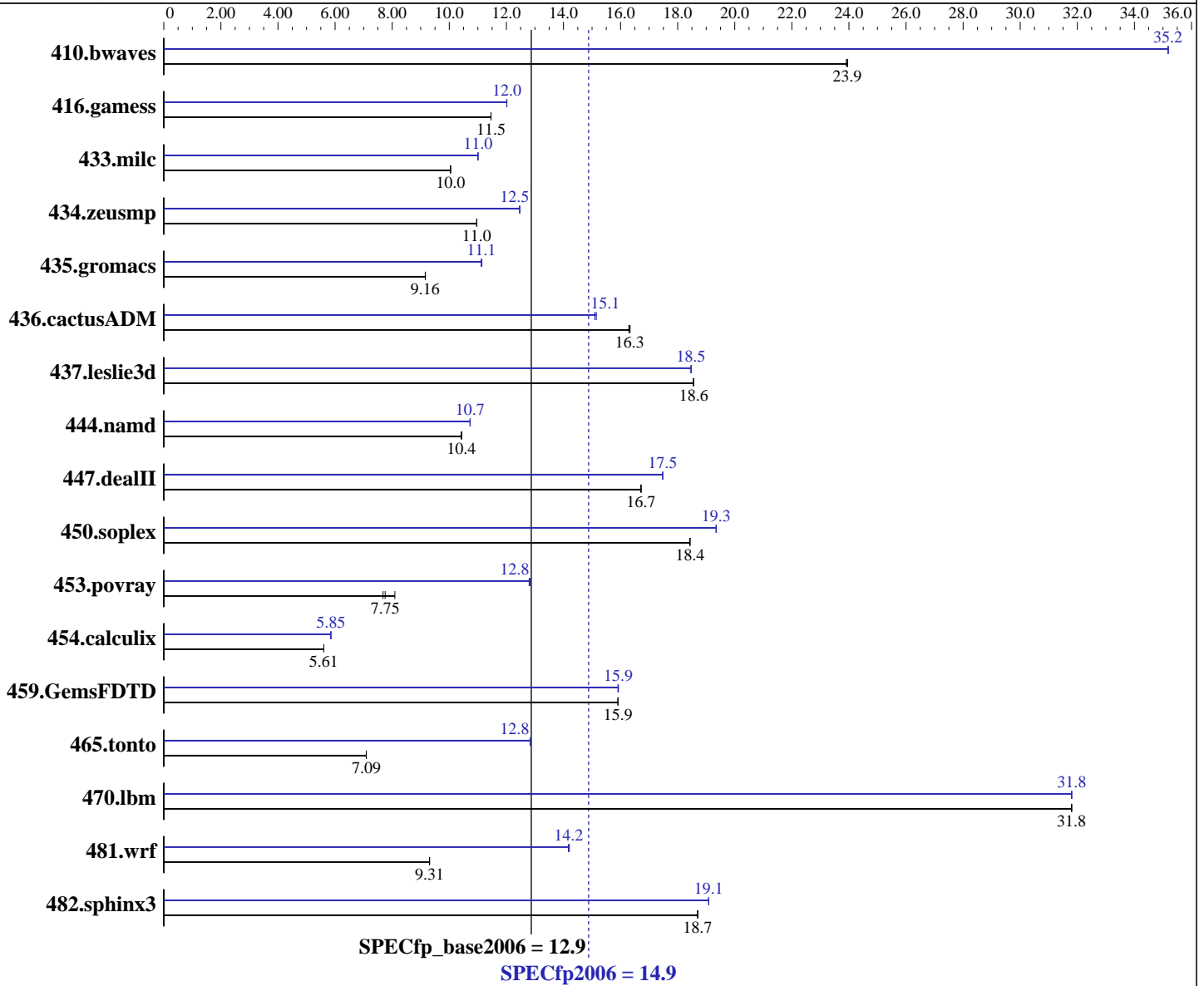
SPECfp_base2006 =   12.9

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

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

Benchmark	Peak	Base
410.bwaves	35.2	23.9
416.gamess	12.0	11.5
433.milc	11.0	10.0
434.zeusmp	12.5	11.0
435.gromacs	11.1	9.16
436.cactusADM	15.1	16.3
437.leslie3d	18.5	18.6
444.namd	10.7	10.4
447.dealII	17.5	16.7
450.soplex	19.3	18.4
453.povray	12.8	7.75
454.calculix	5.85	5.61
459.GemsFDTD	15.9	15.9
465.tonto	12.8	7.09
470.lbm	31.8	31.8
481.wrf	14.2	9.31
482.sphinx3	19.1	18.7

SPECfp_base2006 = 12.9
SPECfp2006 = 14.9

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

Continued on next page

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)
```

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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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$SPECfp2006 =$ 14.9

$SPECfp\_base2006 =$ 12.9

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

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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`

Continued on next page

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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

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.15.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 10:33:42 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 March 2007.