



SPEC® CFP2006 Result

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Bull SAS

SPECfp®2006 = 19.6

Bull Escala PL1660 (4.2 GHz, 1 core)

SPECfp_base2006 = 16.3

CPU2006 license: 20

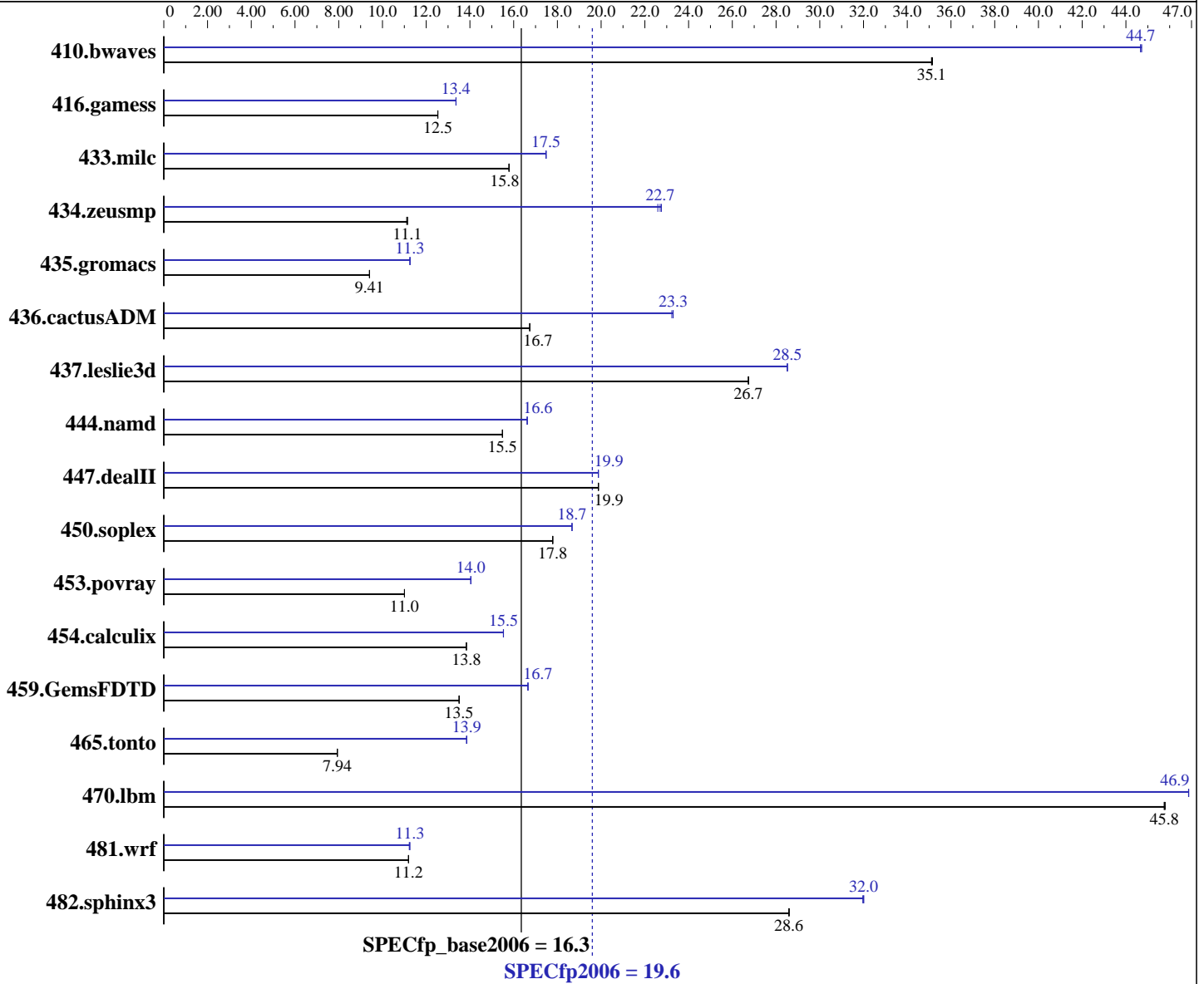
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jun-2008

Hardware Availability: Mar-2008

Software Availability: Oct-2007



Hardware

CPU Name: POWER6
 CPU Characteristics:
 CPU MHz: 4200
 FPU: Integrated
 CPU(s) enabled: 1 core, 1 chip, 2 cores/chip
 CPU(s) orderable: 4,8,12,16 cores (1 to 4 drawers with 2 chips)
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 4 MB I+D on chip per core

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Software

Operating System: IBM AIX 5L V5.3 updated with the 5300-07 Technology Level
 Compiler: XL C/C++ Enterprise Edition V9 for AIX Updated with the Oct2007 PTF.
 XL Fortran Enterprise Edition V11.1 for AIX Updated with the Oct2007 PTF.
 Auto Parallel: No
 File System: AIX/JFS2
 System State: Multi-user

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L3 Cache: 32 MB I+D off chip per chip
 Other Cache: None
 Memory: 128 GB (64x2 GB) DDR2 667 MHz
 Disk Subsystem: 2x73 GB SAS 15K RPM
 Other Hardware: None

Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	387	35.2	387	35.1	387	35.1	304	44.7	304	44.7	304	44.7
416.gamess	1562	12.5	1563	12.5	1562	12.5	1465	13.4	1465	13.4	1465	13.4
433.milc	581	15.8	582	15.8	582	15.8	525	17.5	525	17.5	525	17.5
434.zeusmp	817	11.1	817	11.1	819	11.1	403	22.6	401	22.7	400	22.8
435.gromacs	759	9.41	759	9.41	759	9.40	634	11.3	634	11.3	634	11.3
436.cactusADM	714	16.7	714	16.7	714	16.7	513	23.3	514	23.2	513	23.3
437.leslie3d	351	26.8	352	26.7	352	26.7	330	28.5	330	28.5	330	28.5
444.namd	518	15.5	518	15.5	518	15.5	483	16.6	483	16.6	483	16.6
447.dealII	575	19.9	576	19.9	576	19.9	576	19.9	576	19.9	576	19.9
450.soplex	469	17.8	469	17.8	469	17.8	447	18.7	447	18.7	447	18.7
453.povray	483	11.0	483	11.0	483	11.0	379	14.0	379	14.0	379	14.0
454.calculix	596	13.8	596	13.8	596	13.8	531	15.5	531	15.5	531	15.5
459.GemsFDTD	785	13.5	786	13.5	786	13.5	637	16.7	637	16.6	637	16.7
465.tonto	1240	7.94	1240	7.94	1240	7.94	710	13.9	710	13.9	710	13.9
470.lbm	300	45.8	300	45.8	300	45.8	293	46.9	293	46.9	293	46.9
481.wrf	998	11.2	998	11.2	998	11.2	995	11.2	993	11.3	993	11.3
482.sphinx3	682	28.6	681	28.6	682	28.6	610	32.0	609	32.0	609	32.0

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

General Notes

See flags file of details on following settings.

all ulimits set to unlimited.

Environment variables set before executing benchmarks:

MALLOCOPTIONS=pool

MEMORY_AFFINITY=MCM

XLFRTIOPTS=intrinthds=1

System set to "Enhanced" mode when defining partition on HMC.

Remote console disabled in /etc/inittab.

Speed run on 1 core partition defined on HMC;

(unused cores are powered on, but their clock is halted;

Full L3 cache of the chip is used by the remaining core)

4000 16M large pages defined with vmo command

fdpr binary optimization tool used for:

410.bwaves 433.milc 435.gromacs 436.cactusADM

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General Notes (Continued)

453.povray 470.lbm 482.sphinx3

Base Compiler Invocation

C benchmarks:

/usr/vac/bin/xlc -qlanglvl=extc99

C++ benchmarks:

/usr/vacpp/bin/xlC

Fortran benchmarks:

/usr/bin/xlf95

Benchmarks using both Fortran and C:

/usr/vac/bin/xlc -qlanglvl=extc99 /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:

-bmaxdata:0x40000000 -O5 -qlargepage -D_ILS_MACROS -blpdata

C++ benchmarks:

-bmaxdata:0x50000000 -O5 -qlargepage -D_ILS_MACROS -qrtti=all
-D__IBM_FAST_VECTOR -blpdata

Fortran benchmarks:

-bmaxdata:0x60000000 -O5 -qlargepage -qsmallstack=dynlenonheap
-qalias=nostd -blpdata

Benchmarks using both Fortran and C:

-bmaxdata:0x60000000 -O5 -qlargepage -D_ILS_MACROS
-qsmallstack=dynlenonheap -qalias=nostd -blpdata



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Base Other Flags

C benchmarks:

-qipa=noobject -qipa=threads -qsuppress=1500-036

C++ benchmarks:

-qipa=noobject -qipa=threads -qsuppress=1500-036

Fortran benchmarks:

-qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qipa=threads
-qsuppress=1500-036

Benchmarks using both Fortran and C:

-qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qipa=threads
-qsuppress=1500-036

Peak Compiler Invocation

C benchmarks:

/usr/vac/bin/xlc -qlanglvl=extc99

C++ benchmarks:

/usr/vacpp/bin/xlC

Fortran benchmarks:

/usr/bin/xlf95

Benchmarks using both Fortran and C:

/usr/vac/bin/xlc -qlanglvl=extc99 /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: -bmaxdata:0x40000000 -O5 -qlargepage -D_ILS_MACROS
-qalign=natural -qfdpr -blpdata

470.lbm: -O5 -qlargepage -D_ILS_MACROS -qfdpr -q64 -blpdata

482.sphinx3: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qlargepage -qenablevmx
-qvecnv1 -D_ILS_MACROS -qfdpr -blpdata

C++ benchmarks:

444.namd: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -D_ILS_MACROS

447.dealIII: -bmaxdata:0x50000000 -O5 -qlargepage -D_ILS_MACROS
-qrtti=all -D__IBM_FAST_VECTOR -blpdata

450.soplex: -bmaxdata:0x40000000 -qpdf1(pass 1) -qpdf2(pass 2) -O4
-qlargepage -qenablevmx -qvecnv1 -qstrict -D_ILS_MACROS
-blpdata

453.povray: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -qenablevmx
-qvecnv1 -D_ILS_MACROS -qalign=natural -qfdpr -blpdata

Fortran benchmarks:

410.bwaves: -bmaxdata:0x50000000 -O5 -qlargepage -qenablevmx -qvecnv1
-qfdpr -qsmallstack=dynlenonheap -blpdata

416.gamess: -bmaxdata:0x40000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5
-qalias=nostd

434.zeusmp: -bmaxdata:0x40000000 -qpdf1(pass 1) -qpdf2(pass 2) -O3
-qarch=auto -qtune=auto -qlargepage -qenablevmx -qvecnv1
-qxl90=nosignedzero -blpdata

437.leslie3d: -O4 -qlargepage -q64 -blpdata

459.GemsFDTD: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -qenablevmx
-qvecnv1 -q64 -blpdata

465.tonto: -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5
-qlargepage -blpdata

Benchmarks using both Fortran and C:

435.gromacs: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -qenablevmx
-qvecnv1 -qfdpr -D_ILS_MACROS -blpdata

436.cactusADM: -bmaxdata:0x60000000 -qpdf1(pass 1) -qpdf2(pass 2) -O2
-qarch=auto -qtune=auto -qlargepage -qenablevmx -qvecnv1
-qfdpr -qnostrict -D_ILS_MACROS -blpdata

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Peak Optimization Flags (Continued)

454.calculix: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qlargepage
-D_ILS_MACROS -blpdata

481.wrf: -bmaxdata:0x30000000 -O5 -qlargepage -qalias=nostd
-D_ILS_MACROS -blpdata

Peak Other Flags

C benchmarks:

-qipa=noobject -qipa=threads -qsuppress=1500-036

C++ benchmarks:

-qipa=noobject -qipa=threads -qsuppress=1500-036

Fortran benchmarks:

-qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qipa=threads
-qsuppress=1500-036

Benchmarks using both Fortran and C:

-qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qipa=threads
-qsuppress=1500-036

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

<http://www.spec.org/cpu2006/flags/IBM-AIX-XL.html>

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

<http://www.spec.org/cpu2006/flags/IBM-AIX-XL.xml>

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 20:04:44 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 July 2008.