SPEC® CFP2006 Result

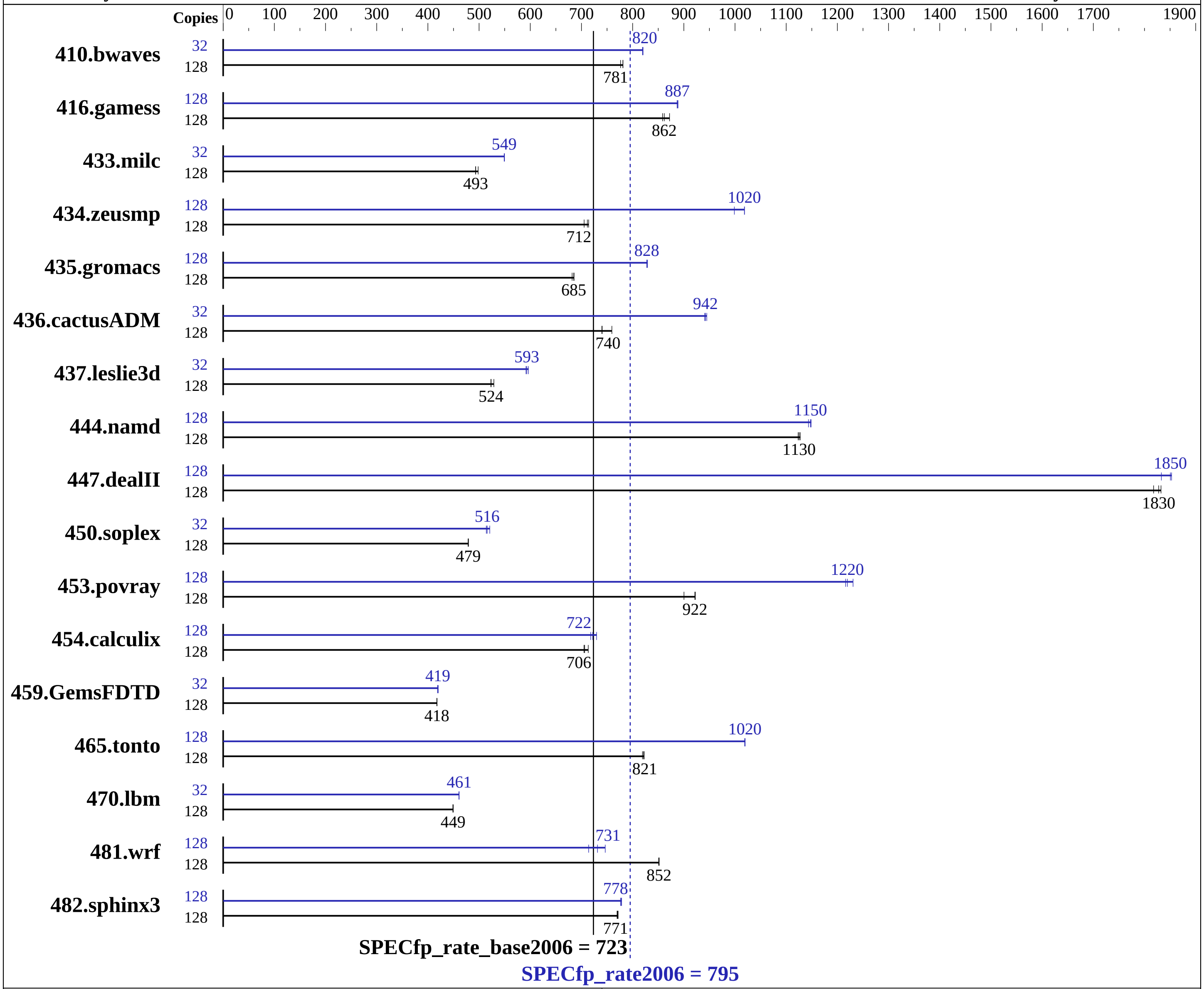
Bull SAS

Escala E5-700 (3.0 GHz, 32 core)

SPECfp®_rate2006 = 795

SPECfp_rate_base2006 = 723

CPU2006 license:	20	**Test date:**	Mar-2010
Test sponsor:	Bull SAS	**Hardware Availability:**	Mar-2010
Tested by:	Bull SAS	**Software Availability:**	Feb-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.30 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	6,8,12,16,18,24,32 cores
Primary Cache:	32 KB I + 32 KB D on chip per core

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Software

Operating System:	IBM AIX V6.1 with the 6100-04 Technology Level and Service Pack 2
Compiler:	XL C/C++ Enterprise Edition V10.1.0.5 for AIX XL Fortran Enterprise Edition V12.1.0.6 for AIX
Auto Parallel:	No
File System:	AIX/JFS2
System State:	Run level 3
Base Pointers:	32-bit
Peak Pointers:	32/64-bit

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Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 4 MB I+D on chip per core
Other Cache: None
Memory: 256 GB (32 x 8 GB) DDR3 1066 MHz
Disk Subsystem: 8 x 69 GB SAS SSD (IBM provider)
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	128	2240	776	**2227**	**781**	2227	781	32	**531**	**820**	530	820	531	819
416.gamess	128	2874	872	**2908**	**862**	2919	858	128	2820	889	2826	887	**2825**	**887**
433.milc	128	2358	498	2382	493	**2381**	**493**	32	**535**	**549**	534	550	535	549
434.zeusmp	128	1652	705	**1637**	**712**	1631	714	128	1166	999	1144	1020	**1144**	**1020**
435.gromacs	128	1333	686	1340	682	**1334**	**685**	128	**1104**	**828**	1103	829	1104	828
436.cactusADM	128	2014	759	**2066**	**740**	2067	740	32	**406**	**942**	406	941	405	945
437.leslie3d	128	2275	529	2300	523	**2298**	**524**	32	504	596	**507**	**593**	508	592
444.namd	128	914	1120	**912**	**1130**	911	1130	128	**895**	**1150**	898	1140	894	1150
447.dealII	128	806	1820	**801**	**1830**	799	1830	128	790	1850	**791**	**1850**	799	1830
450.soplex	128	2231	479	2227	479	**2229**	**479**	32	512	521	519	514	**517**	**516**
453.povray	128	**739**	**922**	756	900	738	922	128	**558**	**1220**	553	1230	560	1220
454.calculix	128	1481	713	**1495**	**706**	1498	705	128	**1463**	**722**	1470	718	1447	730
459.GemsFDTD	128	**3252**	**418**	3253	417	3251	418	32	**809**	**419**	810	419	808	420
465.tonto	128	**1533**	**821**	1531	822	1537	819	128	**1236**	**1020**	1235	1020	1236	1020
470.lbm	128	**3915**	**449**	3913	449	3919	449	32	**954**	**461**	955	461	954	461
481.wrf	128	1680	851	**1679**	**852**	1678	852	128	1915	746	**1955**	**731**	2002	714
482.sphinx3	128	3242	770	3233	772	**3238**	**771**	128	3205	778	**3208**	**778**	3213	776

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

Peak Tuning Notes

```
fdpr binary optimization tool used for 410.bwaves
 with options -O3 -vrox -pbsi -A 64
fdpr binary optimization tool used for 433.milc
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 434.zeusmp
 with options -O3 -vrox -sdp 9
fdpr binary optimization tool used for 435.gromacs
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 437.leslie3d
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 450.soplex
 with options -O3 -vrox -sdp 9
fdpr binary optimization tool used for 453.povray
```

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Peak Tuning Notes (Continued)

```
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 454.calculix
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 459.GemsFDTD
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 470.lbm
 with options -O3 -vrox -sdp 9
fdpr binary optimization tool used for 481.wrf
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 482.sphinx3
 with options -O4 -vrox -pbsi
```

Submit Notes

```
The config file option 'submit' was used
to assign benchmark copy to specific kernel thread using
the "bindprocessor" command (see flags file for details).
```

Operating System Notes

```
all ulimits set to unlimited.
12800 16M large pages defined with vmo command
```

General Notes

```
Environment variables set by runspec before the start of the run:
MALLOCOPTIONS = "pool"
MEMORY_AFFINITY = "MCM"
XLFRTEOPTS = "intrinthds=1"

 See the flags file for details on settings.
```

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`

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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 -D__IBM_FAST_SET_MAP_ITERATOR -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

Base Other Flags

C benchmarks:
-qipa=threads -qipa=noobject -qsuppress=1500-036

C++ benchmarks:
-qipa=threads -qipa=noobject -qsuppress=1500-036

Fortran benchmarks:
-qipa=threads -qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg
-qsuppress=1500-036

Benchmarks using both Fortran and C:
-qipa=threads -qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg
-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:

433.milc: -bmaxdata:0x40000000 -O5 -qlargepage -D_ILS_MACROS -qalign=natural -qfdpr -blpdata

470.lbm: -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=auto -qtune=auto -qlargepage -q64 -D_ILS_MACROS -qfdpr -blpdata

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

C++ benchmarks:

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

447.dealII: -bmaxdata:0x50000000 -O5 -D_ILS_MACROS -qrtti=all -D__IBM_FAST_VECTOR -D__IBM_FAST_SET_MAP_ITERATOR -blpdata -btextpsize:64K

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Peak Optimization Flags (Continued)

450.soplex: -O3 -qarch=auto -qtune=auto -qlargepage -q64 -D_ILS_MACROS -qfdpr -blpdata

453.povray: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -D_ILS_MACROS -qalign=natural -qfdpr -btextpsize:64K

Fortran benchmarks:

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

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

434.zeusmp: -bmaxdata:0x40000000 -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=auto -qtune=auto -qlargepage -qenablevmx -qvecnvol -qxlf90=nosignedzero -qfdpr -blpdata

437.leslie3d: -O5 -qlargepage -qenablevmx -qvecnvol -qfdpr -blpdata

459.GemsFDTD: -O4 -qlargepage -q64 -qfdpr -blpdata

465.tonto: -bmaxdata:0x50000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5 -blpdata -btextpsize:64K

Benchmarks using both Fortran and C:

435.gromacs: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -D_ILS_MACROS -qfdpr

436.cactusADM: -bmaxdata:0x60000000 -qpdf1(pass 1) -qpdf2(pass 2) -O2 -qarch=auto -qtune=auto -qenablevmx -qvecnvol -D_ILS_MACROS -qfdpr -qnostrict -blpdata -btextpsize:64K

454.calculix: -O4 -qlargepage -q64 -D_ILS_MACROS -qfdpr -blpdata

481.wrf: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -q64 -D_ILS_MACROS -qfdpr -blpdata

Peak Other Flags

C benchmarks:
-qipa=threads -qipa=noobject -qsuppress=1500-036

C++ benchmarks:
-qipa=threads -qipa=noobject -qsuppress=1500-036

Fortran benchmarks:
-qipa=threads -qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qsuppress=1500-036

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Peak Other Flags (Continued)

Benchmarks using both Fortran and C:
`-qipa=threads -qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qsuppress=1500-036`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-XL.20100414.html
http://www.spec.org/cpu2006/flags/IBM-AIX.20100414.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-XL.20100414.xml
http://www.spec.org/cpu2006/flags/IBM-AIX.20100414.xml

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

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