



SPEC[®] CFP2006 Result

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Bull SAS

SPECfp[®]_rate2006 = 248

Bull Escala PL1650R+ (2200 MHz, 16 CPU)

SPECfp_rate_base2006 = 229

CPU2006 license: 20

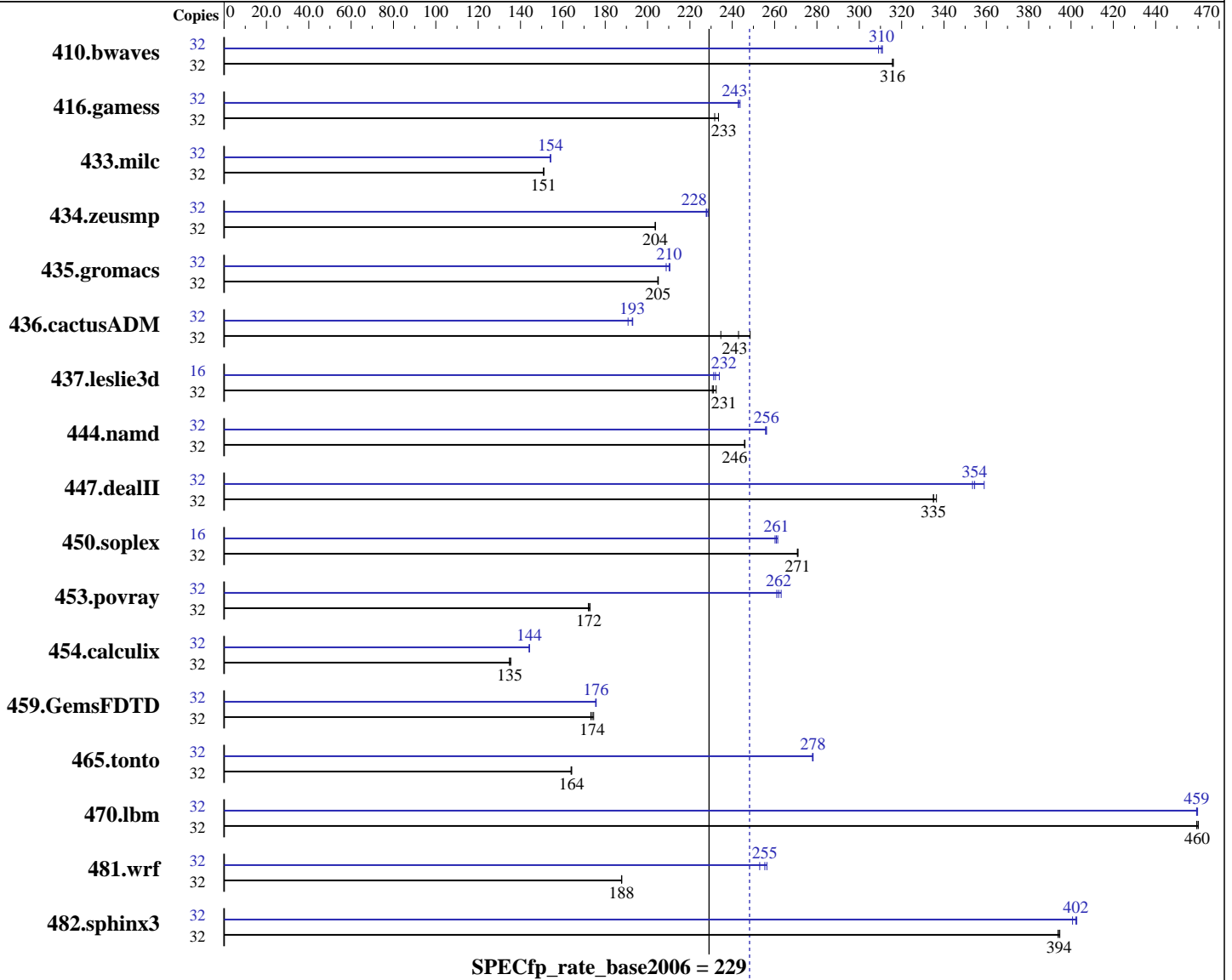
Test date: Feb-2007

Test sponsor: Bull SAS

Hardware Availability: Feb-2006

Tested by: Bull SAS

Software Availability: Dec-2006



Hardware

CPU Name: POWER5+
 CPU Characteristics:
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 16 cores, 8 chips, 2 cores/chip, 2 threads/core
 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	<u>1377</u>	<u>316</u>	1378	316	1376	316	32	<u>1401</u>	<u>310</u>	1407	309	1399	311
416.gamess	32	2683	234	2704	232	<u>2683</u>	<u>233</u>	32	2571	244	2580	243	<u>2579</u>	<u>243</u>
433.milc	32	1945	151	<u>1946</u>	<u>151</u>	1947	151	32	<u>1904</u>	<u>154</u>	1906	154	1904	154
434.zeusmp	32	1430	204	1429	204	<u>1430</u>	<u>204</u>	32	1274	229	<u>1278</u>	<u>228</u>	1279	228
435.gromacs	32	<u>1115</u>	<u>205</u>	1114	205	1115	205	32	1094	209	1085	211	<u>1087</u>	<u>210</u>
436.cactusADM	32	1539	248	1630	235	<u>1574</u>	<u>243</u>	32	<u>1984</u>	<u>193</u>	2004	191	1981	193
437.leslie3d	32	1304	231	1294	232	<u>1301</u>	<u>231</u>	16	<u>648</u>	<u>232</u>	643	234	650	231
444.namd	32	1044	246	1043	246	<u>1043</u>	<u>246</u>	32	1002	256	<u>1002</u>	<u>256</u>	1004	256
447.dealII	32	1088	336	<u>1092</u>	<u>335</u>	1093	335	32	1020	359	1036	353	<u>1033</u>	<u>354</u>
450.soplex	32	984	271	<u>985</u>	<u>271</u>	986	271	16	510	261	513	260	<u>512</u>	<u>261</u>
453.povray	32	985	173	990	172	<u>988</u>	<u>172</u>	32	647	263	<u>650</u>	<u>262</u>	652	261
454.calculix	32	<u>1957</u>	<u>135</u>	1959	135	1949	135	32	<u>1831</u>	<u>144</u>	1830	144	1832	144
459.GemsFDTD	32	<u>1953</u>	<u>174</u>	1945	175	1960	173	32	1932	176	1935	175	<u>1932</u>	<u>176</u>
465.tonto	32	<u>1919</u>	<u>164</u>	1922	164	1918	164	32	1132	278	<u>1132</u>	<u>278</u>	1133	278
470.lbm	32	955	460	<u>957</u>	<u>460</u>	957	459	32	<u>957</u>	<u>459</u>	957	459	956	460
481.wrf	32	1904	188	1903	188	<u>1904</u>	<u>188</u>	32	<u>1400</u>	<u>255</u>	1394	256	1413	253
482.sphinx3	32	1584	394	<u>1581</u>	<u>394</u>	1580	395	32	1549	403	<u>1550</u>	<u>402</u>	1556	401

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 lpgg_regions=3200 -o lpgg_size=16777216
```

SMT was enabled using the AIX commands

```
smtctl -m on -w boot
```

```
bosboot -aD
```

```
shutdown -rF
```



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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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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:

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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

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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

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For other inquiries, please contact webmaster@spec.org.

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