SPEC® CFP2006 Result

IBM Corporation

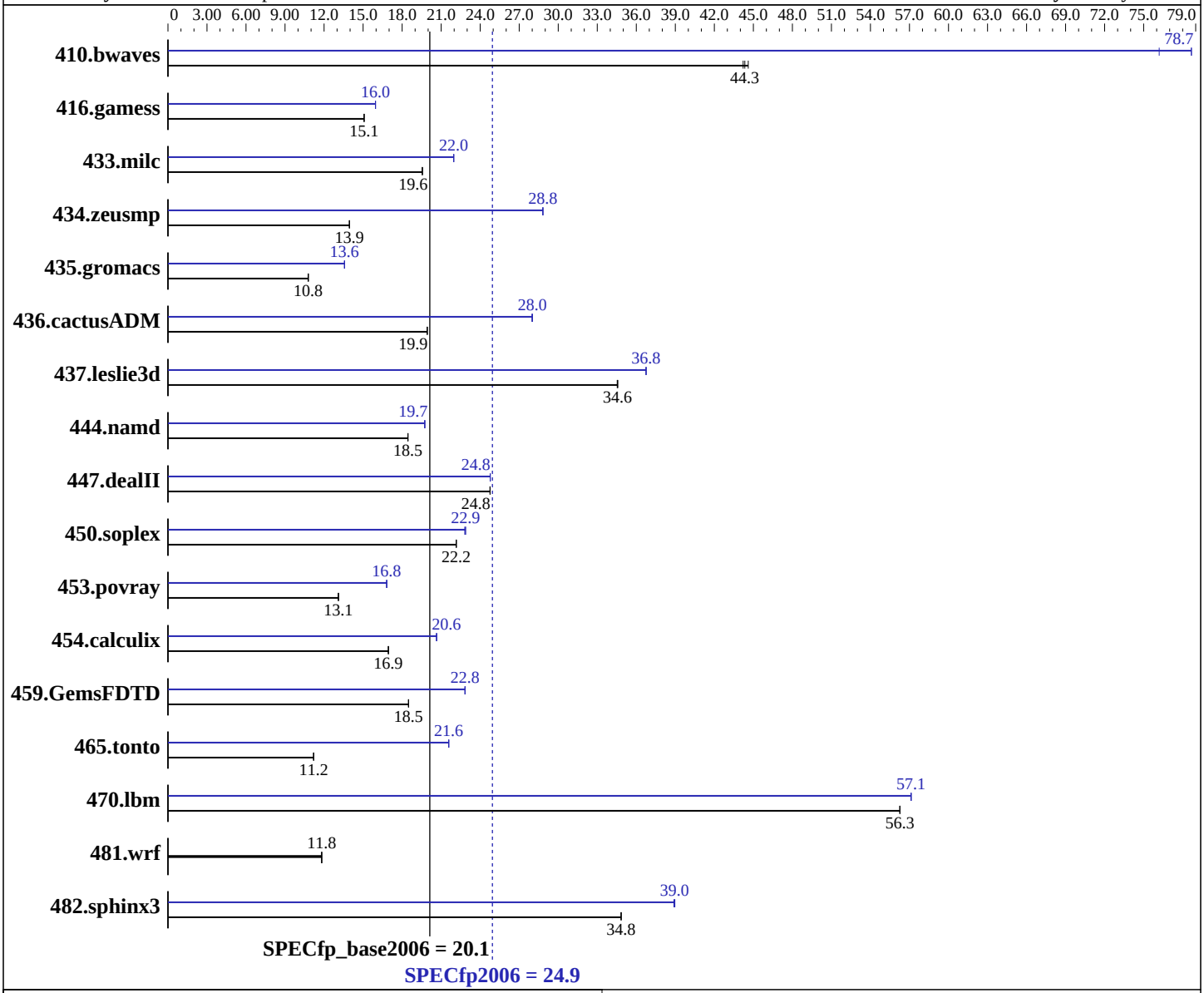
IBM Power 595 (5.0 GHz, 1 core)

SPECfp®2006 = 24.9

SPECfp_base2006 = 20.1

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Mar-2008
Hardware Availability: May-2008
Software Availability: May-2008



Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	5000
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 2 cores/chip
CPU(s) orderable:	8,16,24,32,40,48,56,64 cores
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 V6.1 with the 6100-01 Technology Level
Compiler:	XL C/C++ Enterprise Edition V9 for AIX Updated with the Jan2008 PTF. XL Fortran Enterprise Edition V11.1 for AIX Updated with the Jan2008 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:	512 GB (256x2 GB) DDR2 667 MHz
Disk Subsystem:	4x146 GB SCSI 15K RPM
Other Hardware:	None

Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	--

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	305	44.6	**306**	**44.3**	307	44.2	178	76.2	**173**	**78.7**	173	78.7
416.gamess	1299	15.1	1298	15.1	**1299**	**15.1**	**1227**	**16.0**	1228	16.0	1227	16.0
433.milc	470	19.6	**470**	**19.6**	469	19.6	418	22.0	**418**	**22.0**	418	22.0
434.zeusmp	**652**	**13.9**	652	13.9	652	14.0	**316**	**28.8**	316	28.8	316	28.8
435.gromacs	662	10.8	**662**	**10.8**	662	10.8	526	13.6	**526**	**13.6**	526	13.6
436.cactusADM	600	19.9	599	19.9	**600**	**19.9**	427	28.0	427	28.0	**427**	**28.0**
437.leslie3d	272	34.5	**272**	**34.6**	272	34.6	256	36.7	**256**	**36.8**	256	36.8
444.namd	**435**	**18.5**	435	18.4	435	18.5	406	19.7	**406**	**19.7**	406	19.7
447.dealII	462	24.8	462	24.8	**462**	**24.8**	462	24.8	**462**	**24.8**	462	24.8
450.soplex	**376**	**22.2**	376	22.2	377	22.1	366	22.8	365	22.9	**365**	**22.9**
453.povray	406	13.1	406	13.1	**406**	**13.1**	**316**	**16.8**	316	16.8	316	16.8
454.calculix	**487**	**16.9**	487	16.9	487	16.9	399	20.7	**400**	**20.6**	400	20.6
459.GemsFDTD	**574**	**18.5**	574	18.5	574	18.5	**465**	**22.8**	465	22.8	465	22.8
465.tonto	**879**	**11.2**	879	11.2	879	11.2	**456**	**21.6**	456	21.6	456	21.6
470.lbm	**244**	**56.3**	244	56.3	244	56.3	241	57.1	**241**	**57.1**	241	57.1
481.wrf	**945**	**11.8**	945	11.8	945	11.8	**945**	**11.8**	945	11.8	945	11.8
482.sphinx3	559	34.8	**559**	**34.8**	560	34.8	501	38.9	**500**	**39.0**	500	39.0

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.
Envionment variables set before executing benchmarks:
  MALLOCOPTIONS=pool
  MEMORY_AFFINITY=MCM
  XLFRTEOPTS=intrinthds=1
System set to "Enhanced" mode when defining partition on HMC.
Speed run on 1 core partition defined on HMC.
12800 16M large pages defined with vmo command
Remote console disabled in /etc/inittab.
fdpr binary optimization tool used for:
  410.bwaves 433.milc 435.gromacs 436.cactusADM
  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
```

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 -qvecnvol -D_ILS_MACROS -qfdpr -blpdata`

C++ benchmarks:

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

447.dealII: `-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 -qvecnvol -qstrict -D_ILS_MACROS -blpdata`

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

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 -qalias=nostd`

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

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

459.GemsFDTD: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -qenablevmx -qvecnvol -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 -qvecnvol -qfdpr -D_ILS_MACROS -blpdata`

436.cactusADM: `-bmaxdata:0x60000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O2 -qarch=auto -qtune=auto -qlargepage -qenablevmx -qvecnvol -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: `basepeak = yes`

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.20090714.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IBM-AIX-XL.20090714.xml

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

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