SPEC® CFP2006 Result

IBM Corporation

IBM System p 570 (4.7 GHz, 1 core)

$SPECfp^{®}2006 =$ 22.3
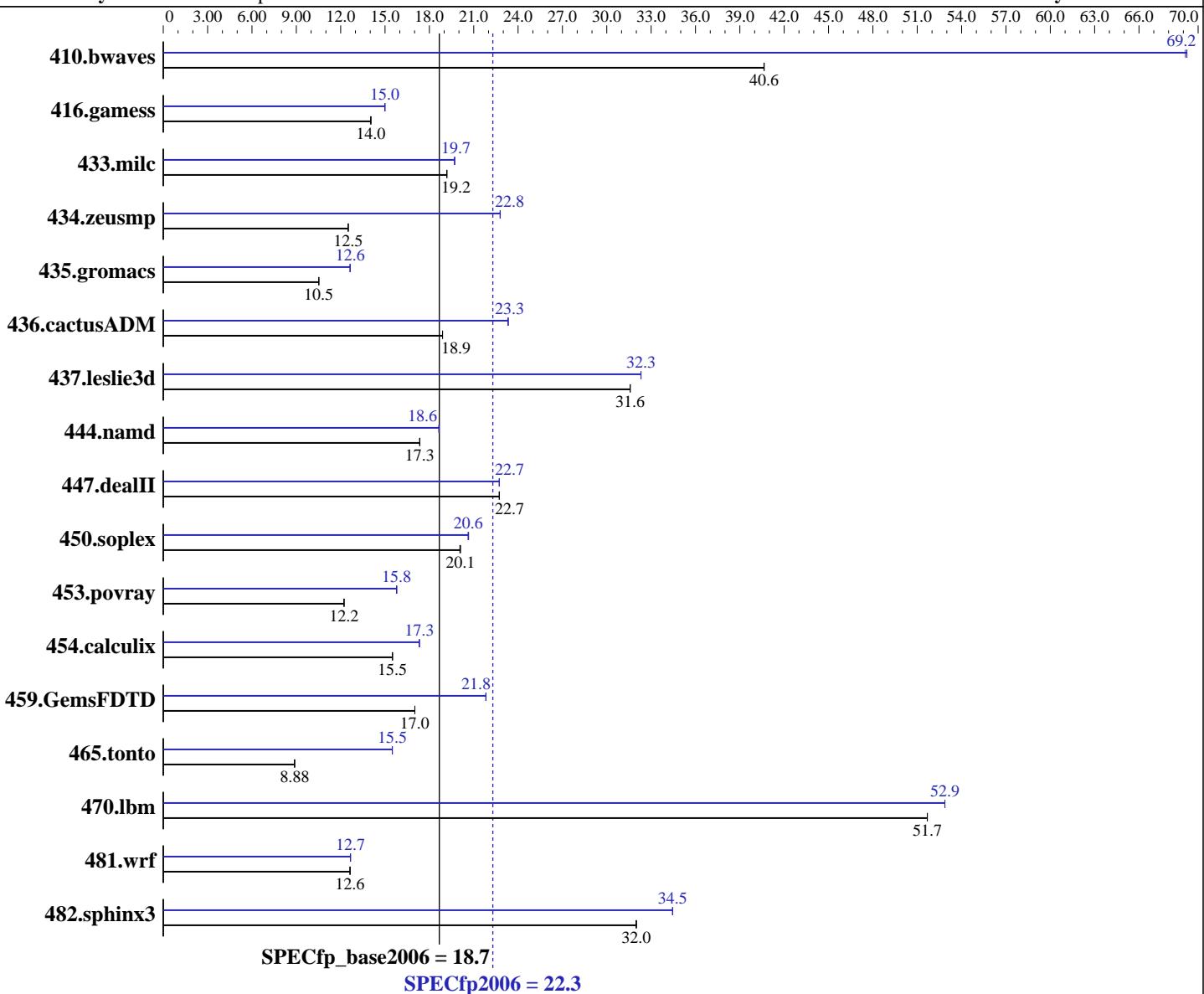
$SPECfp\_base2006 =$ 18.7

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: May-2007

Hardware Availability: Jun-2007

Software Availability: Jun-2007

Benchmark	Peak	Base
410.bwaves	69.2	40.6
416.gamess	15.0	14.0
433.milc	19.7	19.2
434.zeusmp	22.8	12.5
435.gromacs	12.6	10.5
436.cactusADM	23.3	18.9
437.leslie3d	32.3	31.6
444.namd	18.6	17.3
447.dealII	22.7	22.7
450.soplex	20.6	20.1
453.povray	15.8	12.2
454.calculix	17.3	15.5
459.GemsFDTD	21.8	17.0
465.tonto	15.5	8.88
470.lbm	52.9	51.7
481.wrf	12.7	12.6
482.sphinx3	34.5	32.0

SPECfp_base2006 = 18.7

SPECfp2006 = 22.3

Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	4700
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 2 cores/chip
CPU(s) orderable:	2,4,8,12,16 cores
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per core

Software

Operating System:	IBM AIX 5L V5.3
Compiler:	XL C/C++ Enterprise Edition Version 9.0 for AIX
	XL Fortran Enterprise Edition Version 11.1 for AIX
Auto Parallel:	No
File System:	AIX/JFS2
System State:	Multi-user
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	--

Continued on next page

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L3 Cache:	32 MB I+D off chip per chip
Other Cache:	None
Memory:	16 GB (8x2 GB) DDR2 667 MHz
Disk Subsystem:	1x73 GB 1x146 GB SAS 15K RPM
Other Hardware:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**334**	**40.6**	334	40.6	334	40.6	197	69.1	196	69.2	**196**	**69.2**
416.gamess	1395	14.0	**1395**	**14.0**	1395	14.0	1306	15.0	**1306**	**15.0**	1306	15.0
433.milc	479	19.2	479	19.2	**479**	**19.2**	466	19.7	**466**	**19.7**	466	19.7
434.zeusmp	**727**	**12.5**	728	12.5	727	12.5	399	22.8	**399**	**22.8**	399	22.8
435.gromacs	679	10.5	**679**	**10.5**	679	10.5	**565**	**12.6**	565	12.6	565	12.6
436.cactusADM	633	18.9	**633**	**18.9**	633	18.9	**512**	**23.3**	513	23.3	512	23.3
437.leslie3d	298	31.6	298	31.6	**298**	**31.6**	291	32.3	291	32.3	**291**	**32.3**
444.namd	462	17.3	462	17.3	**462**	**17.3**	430	18.6	430	18.6	**430**	**18.6**
447.dealII	503	22.7	503	22.7	**503**	**22.7**	503	22.7	503	22.7	**503**	**22.7**
450.soplex	416	20.1	**415**	**20.1**	415	20.1	404	20.6	**404**	**20.6**	404	20.7
453.povray	435	12.2	**435**	**12.2**	435	12.2	337	15.8	**337**	**15.8**	337	15.8
454.calculix	532	15.5	**532**	**15.5**	532	15.5	**476**	**17.3**	476	17.3	477	17.3
459.GemsFDTD	623	17.0	**623**	**17.0**	624	17.0	486	21.8	486	21.8	**486**	**21.8**
465.tonto	1107	8.88	**1108**	**8.88**	1108	8.88	635	15.5	**635**	**15.5**	635	15.5
470.lbm	266	51.7	266	51.7	**266**	**51.7**	260	52.9	260	52.9	**260**	**52.9**
481.wrf	884	12.6	884	12.6	**884**	**12.6**	**882**	**12.7**	882	12.7	882	12.7
482.sphinx3	609	32.0	**609**	**32.0**	609	32.0	566	34.5	**566**	**34.5**	566	34.4

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

General Notes

```
    AIX 5L V5.3 updated with the 5300-06 Technology Level.
    See flags file for details on following settings.
    all ulimits set to unlimited
    Envioment variables set before executing benchmarks:
      MALLOCOPTIONS=pool
      MEMORY_AFFINITY=MCM
      XLFRTEOPTS=intrinthds=1
    System set to "Enhanced" mode when defining partition on HMC
    System limited to 1 core by the HMC partition definition
    768 pages of size 16M defined on systems with vmo command
    fdpr binary optimization tool used for peak versions of
      410.bwaves 434.zeusmp 453.povray 470.lbm 482.sphinx3
    submit used to bind benchmark to a processor using "bindprocessor"
    The "IBM System p 570" and "IBM System i 570" are electronically equivalent.
```

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

Test date: May-2007
Hardware Availability: Jun-2007
Software Availability: Jun-2007

General Notes (Continued)

The results have been measured on the "IBM System p 570" model.

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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IBM System p 570 (4.7 GHz, 1 core)

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$SPECfp\_base2006 =$ 18.7

CPU2006 license: 11		**Test date:**	May-2007
Test sponsor:	IBM Corporation	**Hardware Availability:**	Jun-2007
Tested by:	IBM Corporation	**Software Availability:**	Jun-2007

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 -blpdata

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

    482.sphinx3: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -qenablevmx
                 -qvecnvol -D_ILS_MACROS -blpdata

C++ benchmarks:

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

    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) -O5
                -qlargepage -D_ILS_MACROS -blpdata

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

Fortran benchmarks:

    410.bwaves: -bmaxdata:0x50000000 -O5 -qlargepage -qenablevmx -qvecnvol
                -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) -O5
                -qlargepage -qenablevmx -qvecnvol -qxlf90=nosignedzero
                -blpdata

    437.leslie3d: -O5 -qlargepage -q64 -blpdata

    459.GemsFDTD: -bmaxdata:0x50000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5
                  -qlargepage -qenablevmx -qvecnvol -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 -D_ILS_MACROS -blpdata

    436.cactusADM: -bmaxdata:0x60000000 -D_ILS_MACROS -blpdata

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Peak Optimization Flags (Continued)

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

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

Peak Other Flags

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

C++ benchmarks (except as noted below):
`-qipa=noobject -qipa=threads -qsuppress=1500-036`

450.soplex: `-qstrict -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/CPU2006_flags.20090715.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.xml

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

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