SPEC® CFP2006 Result

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IBM Corporation

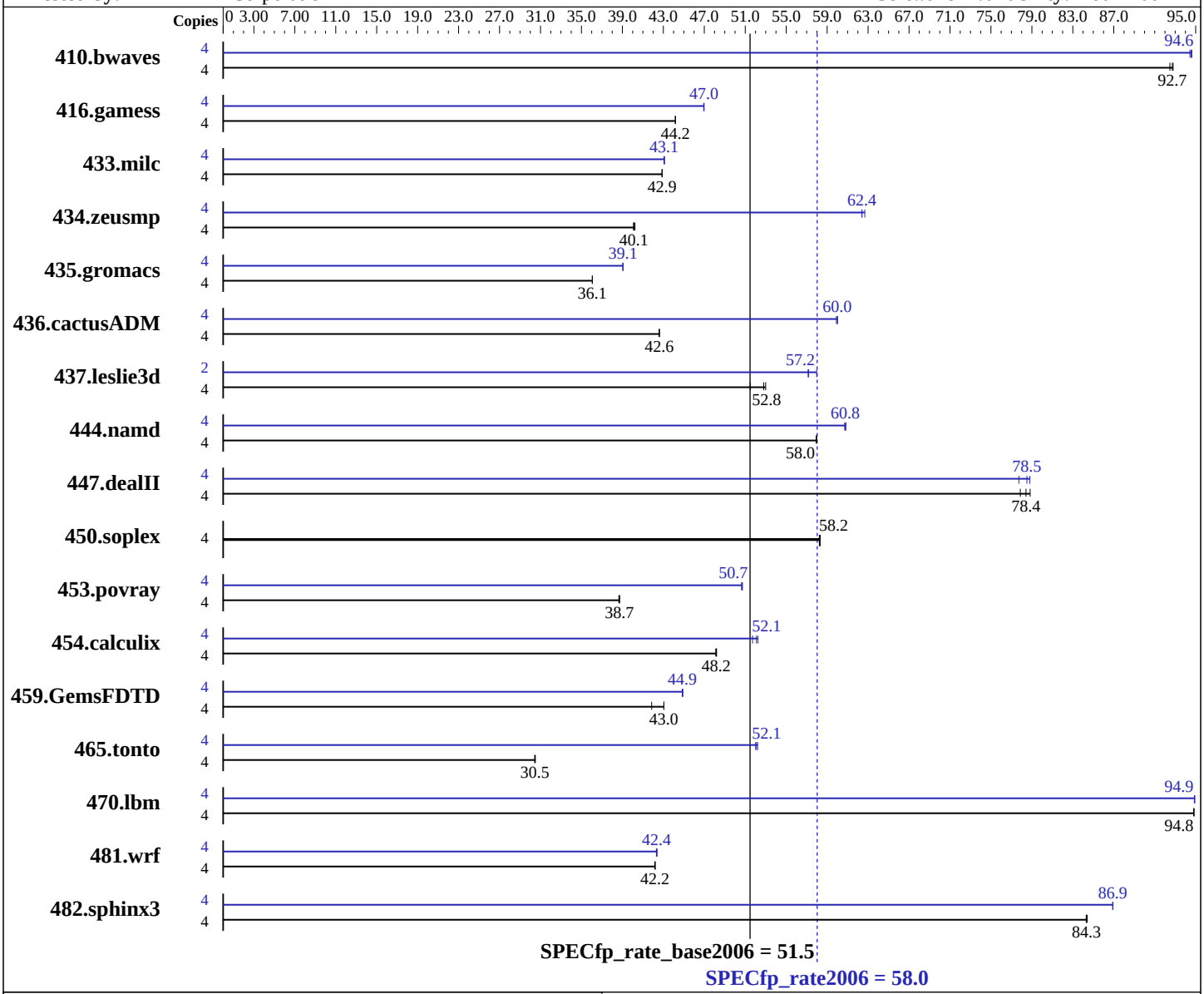
IBM System p 570 (4.7 GHz, 2 core)

SPECfp®_rate2006 = 58.0

SPECfp_rate_base2006 = 51.5

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

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



Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	4700
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip, 2 threads/core
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

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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:	--

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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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	**586**	**92.7**	588	92.5	586	92.8	4	574	94.6	576	94.4	**575**	**94.6**
416.gamess	4	**1773**	**44.2**	1773	44.2	1773	44.2	4	1667	47.0	**1668**	**47.0**	1668	46.9
433.milc	4	856	42.9	**856**	**42.9**	857	42.9	4	852	43.1	852	43.1	**852**	**43.1**
434.zeusmp	4	**907**	**40.1**	905	40.2	908	40.1	4	583	62.4	581	62.7	**583**	**62.4**
435.gromacs	4	792	36.1	**792**	**36.1**	792	36.1	4	**731**	**39.1**	731	39.1	731	39.0
436.cactusADM	4	**1122**	**42.6**	1122	42.6	1122	42.6	4	796	60.0	798	59.9	**797**	**60.0**
437.leslie3d	4	730	51.5	709	53.0	**712**	**52.8**	2	324	58.0	**329**	**57.2**	329	57.1
444.namd	4	554	57.9	**554**	**58.0**	553	58.0	4	528	60.7	**528**	**60.8**	527	60.8
447.dealII	4	580	78.8	588	77.9	**584**	**78.4**	4	589	77.7	581	78.8	**583**	**78.5**
450.soplex	4	572	58.3	**573**	**58.2**	573	58.2	4	572	58.3	**573**	**58.2**	573	58.2
453.povray	4	**550**	**38.7**	550	38.7	550	38.7	4	420	50.6	420	50.7	**420**	**50.7**
454.calculix	4	685	48.2	686	48.1	**685**	**48.2**	4	632	52.2	638	51.7	**634**	**52.1**
459.GemsFDTD	4	**986**	**43.0**	1014	41.9	986	43.1	4	945	44.9	946	44.8	**946**	**44.9**
465.tonto	4	**1292**	**30.5**	1293	30.4	1291	30.5	4	757	52.0	754	52.2	**755**	**52.1**
470.lbm	4	580	94.8	580	94.8	**580**	**94.8**	4	**579**	**94.9**	579	94.9	579	94.9
481.wrf	4	**1059**	**42.2**	1059	42.2	1059	42.2	4	**1055**	**42.4**	1056	42.3	1054	42.4
482.sphinx3	4	**924**	**84.3**	925	84.3	924	84.4	4	897	86.9	**897**	**86.9**	897	86.9

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
Envionment variables set before executing benchmarks:
  MALLOCOPTIONS=pool
  MEMORY_AFFINITY=MCM
  XLFRTEOPTS=intrinthds=1
System set to "Enhanced" mode when defining partition on HMC
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"
```

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:

Continued on next page

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: basepeak = yes

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

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

Continued on next page

Peak Optimization Flags (Continued)

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:
`-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`

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