SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

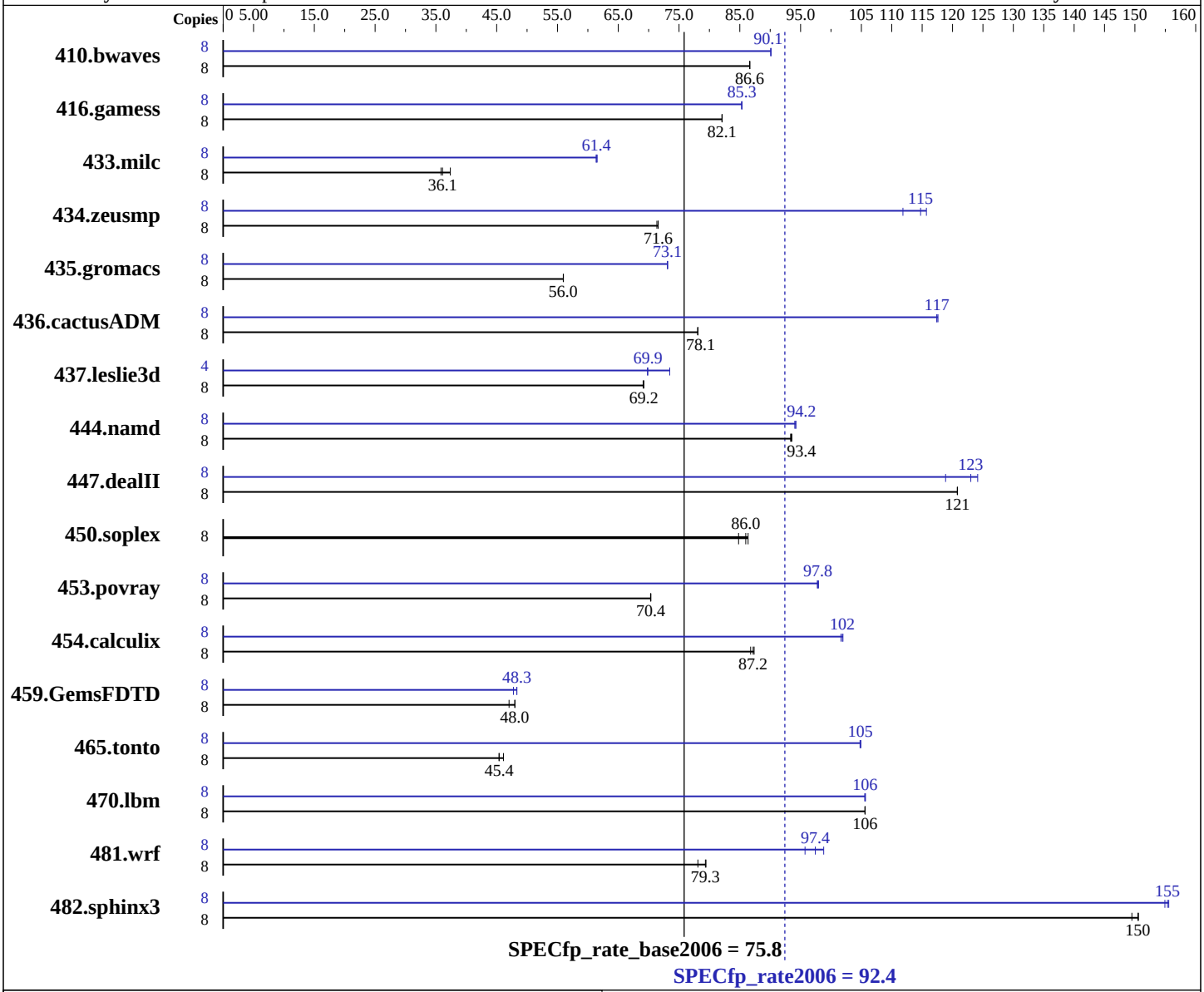
IBM BladeCenter JS23 Express (4.2 GHz, 4 core, SLES)

SPECfp®_rate2006 = 92.4

SPECfp_rate_base2006 = 75.8

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

Test date: Mar-2009
Hardware Availability: May-2009
Software Availability: Mar-2009



Hardware

CPU Name:	POWER6+
CPU Characteristics:	
CPU MHz:	4200
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	4 cores
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per core

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 11
Compiler:	IBM XL C/C++ for Linux, V10.1 Updated with the Mar2009 PTF. IBM XL Fortran for Linux, V12.1 Updated with the Mar2009 PTF.
Auto Parallel:	No
File System:	ext3
System State:	Run Level 3 (Multi-User)

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM BladeCenter JS23 Express (4.2 GHz, 4 core, SLES)

SPECfp_rate2006 = 92.4

SPECfp_rate_base2006 = 75.8

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

Test date: Mar-2009
Hardware Availability: May-2009
Software Availability: Mar-2009

L3 Cache: 32 MB I+D off chip per chip
Other Cache: None
Memory: 32 GB (8x4 GB) DDR2 667 MHz
Disk Subsystem: 1x146 GB SAS 15K RPM
Other Hardware: None

Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: -Post-Link Optimization for Linux on POWER, Version 5.4.0-21
-MicroQuill SmartHeap 8.1

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1255	86.7	1255	86.6	**1255**	**86.6**	8	1207	90.1	**1207**	**90.1**	1206	90.1
416.gamess	8	**1909**	**82.1**	1908	82.1	1909	82.1	8	**1835**	**85.3**	1837	85.3	1835	85.4
433.milc	8	**2034**	**36.1**	1965	37.4	2049	35.8	8	1197	61.4	1194	61.5	**1196**	**61.4**
434.zeusmp	8	**1017**	**71.6**	1017	71.6	1020	71.4	8	629	116	**634**	**115**	651	112
435.gromacs	8	1021	56.0	1020	56.0	**1021**	**56.0**	8	781	73.1	782	73.1	**781**	**73.1**
436.cactusADM	8	1225	78.1	1224	78.1	**1224**	**78.1**	8	814	117	813	118	**814**	**117**
437.leslie3d	8	**1087**	**69.2**	1087	69.2	1088	69.1	4	539	69.8	512	73.5	**538**	**69.9**
444.namd	8	687	93.4	**687**	**93.4**	686	93.6	8	681	94.2	**681**	**94.2**	682	94.0
447.dealII	8	**758**	**121**	758	121	758	121	8	770	119	**744**	**123**	737	124
450.soplex	8	**776**	**86.0**	787	84.8	773	86.4	8	**776**	**86.0**	787	84.8	773	86.4
453.povray	8	**605**	**70.4**	605	70.4	605	70.3	8	**435**	**97.8**	435	98.0	435	97.7
454.calculix	8	761	86.8	756	87.4	**757**	**87.2**	8	**648**	**102**	649	102	647	102
459.GemsFDTD	8	**1769**	**48.0**	1805	47.0	1768	48.0	8	1756	48.3	1777	47.8	**1757**	**48.3**
465.tonto	8	**1734**	**45.4**	1707	46.1	1734	45.4	8	751	105	**751**	**105**	750	105
470.lbm	8	1041	106	1041	106	**1041**	**106**	8	**1041**	**106**	1041	106	1040	106
481.wrf	8	1125	79.4	**1126**	**79.3**	1144	78.1	8	**917**	**97.4**	933	95.7	904	98.8
482.sphinx3	8	**1036**	**150**	1043	150	1035	151	8	**1004**	**155**	1002	156	1006	155

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

Submit Notes

```
The config file option 'submit' was used.
 Benchmarks bound to a processor using numactl on the submit command.
```

General Notes

```
 kernel release 2.6.27.19-5-ppc64.
 See flags file for details on following settings.
 ulimit -s (stack) set to 1048576.
 System configured with libhugetlbfs library for application access to large
 Large pages reserved as follows by root user:
     echo 530 > /proc/sys/vm/nr_hugepages
 Environment variables set before executing benchmarks.
     export HUGETLB_VERBOSE=0
     export HUGETLB_MORECORE=yes
```

Continued on next page

General Notes (Continued)

```
    export XLFRTEOPTS=intrinthds=1
IBM Post-Link optimization tool was used for these benchmarks, with options
   433.milc : "-imullX" (instrumentation phase), "-O4 -omullX" (optimizatio
   435.gromacs : same as 433.milc
   436.cactusADM : same as 433.milc
   482.sphinx3 : same as 433.milc
  453.povray : "-imullX" (instrumentation phase), "-O4 -omullX -see 1 -ihf -1" (optimization phase)
   465.tonto : "-O4" (optimization phase)
```

Base Compiler Invocation

C benchmarks:
```
xlc -qlanglvl=extc99
```

C++ benchmarks:
```
xlC
```

Fortran benchmarks:
```
xlf95
```

Benchmarks using both Fortran and C:
```
xlc -qlanglvl=extc99 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: -DNOUNDERSCORE
482.sphinx3: -qchars=signed

Base Optimization Flags

C benchmarks:
```
-O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -lhugetlbfs
```

C++ benchmarks:
```
-O5 -qarch=pwr6 -qtune=pwr6 -qrtti -qnoenablevmx -qstaticlink
-Wl,--whole-archive /usr/lib/libhugetlbfs.a -Wl,--no-whole-archive
```

Fortran benchmarks:
```
-O5 -qarch=pwr6 -qtune=pwr6 -qsmallstack=dynlenonheap -qalias=nostd
-qnoenablevmx -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
```

Continued on next page

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
`-O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -qsmallstack=dynlenonheap -qalias=nostd -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT`

Base Other Flags

C benchmarks:
`-qipa=noobject -qipa=threads`

C++ benchmarks:
`-qipa=noobject -qipa=threads`

Fortran benchmarks:
`-qipa=noobject -qipa=threads`

Benchmarks using both Fortran and C:
`-qipa=noobject -qipa=threads`

Peak Compiler Invocation

C benchmarks:
`xlc -qlanglvl=extc99`

C++ benchmarks:
`xlC`

Fortran benchmarks:
`xlf95`

Benchmarks using both Fortran and C:
`xlc -qlanglvl=extc99 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`

Continued on next page

Peak Portability Flags (Continued)

481.wrf: -DNOUNDERSCORE
482.sphinx3: -qchars=signed

Peak Optimization Flags

C benchmarks:

433.milc: -Wl,-q -O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -lhugetlbfs

470.lbm: -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=pwr6 -qtune=pwr6 -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT -q64

482.sphinx3: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6 -qtune=pwr6 -lhugetlbfs

C++ benchmarks:

444.namd: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6 -qtune=pwr6

447.dealII: -O5 -qarch=pwr6 -qtune=pwr6 -qrtti -qnoenablevmx -qstaticlink -Wl,--whole-archive /usr/lib/libsmartheap.a -Wl,--no-whole-archive

450.soplex: basepeak = yes

453.povray: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6 -qtune=pwr6 -lsmartheap

Fortran benchmarks:

410.bwaves: -O5 -qarch=pwr6 -qtune=pwr6 -qsmallstack=dynlenonheap -lhugetlbfs

416.gamess: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6 -qtune=pwr6 -qalias=nostd -qnoenablevmx

434.zeusmp: -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=pwr6 -qtune=pwr6 -qxlf90=nosignedzero -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT

437.leslie3d: -O5 -qarch=pwr6 -qtune=pwr6 -qsmallstack=dynlenonheap -qnoenablevmx -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT

459.GemsFDTD: -O5 -qarch=pwr6 -qtune=pwr6 -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT -q64

Continued on next page

Peak Optimization Flags (Continued)

465.tonto: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qarch=pwr6 -qtune=pwr6 -q64 -lsmartheap64 -lxlf90_r`

Benchmarks using both Fortran and C:

435.gromacs: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qarch=pwr6 -qtune=pwr6 -lhugetlbfs`

436.cactusADM: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O2 -qarch=pwr6 -qtune=pwr6 -qnostrict -lhugetlbfs`

454.calculix: `-O4 -qarch=pwr6 -qtune=pwr6 -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT`

481.wrf: `-O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -q64 -lhugetlbfs`

Peak Other Flags

C benchmarks:
`-qipa=noobject -qipa=threads`

C++ benchmarks:
`-qipa=noobject -qipa=threads`

Fortran benchmarks:
`-qipa=noobject -qipa=threads`

Benchmarks using both Fortran and C:
`-qipa=noobject -qipa=threads`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/IBM-Linux-XL.html`

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

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 23:46:14 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 12 May 2009.