SPEC® CFP2006 Result

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IBM Corporation

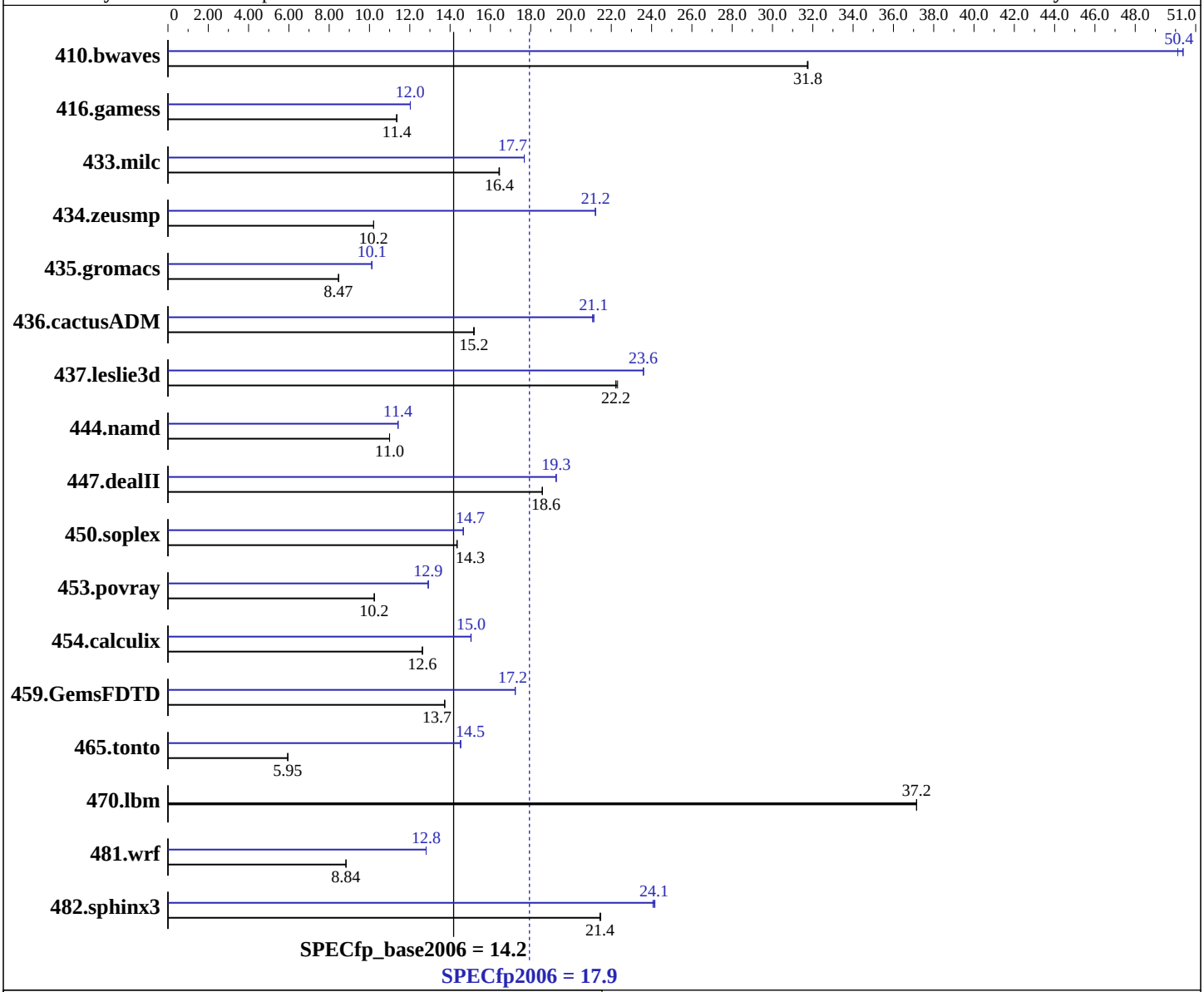
IBM BladeCenter JS12 Express (3.8 GHz, 1 core, RedHat)

SPECfp®2006 = 17.9

SPECfp_base2006 = 14.2

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

Test date: Mar-2008
Hardware Availability: May-2008
Software Availability: Nov-2007



Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	3800
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 2 cores/chip
CPU(s) orderable:	2 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:	Red Hat Enterprise Linux Advanced Platform 5.1 for IBM POWER
Compiler:	IBM XL C/C++ Advanced Edition for Linux, V9.0 IBM XL Fortran Advanced Edition for Linux, V11.1
Auto Parallel:	No
File System:	ext3
System State:	Multi-User
Base Pointers:	32-bit
Peak Pointers:	32/64-bit

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L3 Cache: None
Other Cache: None
Memory: 32 GB (8x4 GB) DDR2 667 MHz
Disk Subsystem: 1x73 GB SAS 15K RPM
Other Hardware: None

Other Software: -IBM Post-Link Optimization for Linux on POWER, Version 5.4.0-17
-MicroQuill SmartHeap 8.1
-IBM Engineering and Scientific Subroutine Library for Linux on POWER, Version 4.3

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	428	31.8	428	31.7	**428**	**31.8**	271	50.1	**270**	**50.4**	270	50.4
416.gamess	**1723**	**11.4**	1723	11.4	1727	11.3	1628	12.0	1628	12.0	**1628**	**12.0**
433.milc	**558**	**16.4**	558	16.4	559	16.4	519	17.7	**519**	**17.7**	519	17.7
434.zeusmp	892	10.2	**891**	**10.2**	891	10.2	429	21.2	**429**	**21.2**	429	21.2
435.gromacs	843	8.47	**843**	**8.47**	844	8.46	706	10.1	**706**	**10.1**	706	10.1
436.cactusADM	786	15.2	**787**	**15.2**	788	15.2	567	21.1	565	21.1	**566**	**21.1**
437.leslie3d	421	22.3	**423**	**22.2**	423	22.2	**399**	**23.6**	399	23.6	398	23.6
444.namd	729	11.0	729	11.0	**729**	**11.0**	702	11.4	702	11.4	**702**	**11.4**
447.dealII	616	18.6	616	18.6	**616**	**18.6**	594	19.3	**594**	**19.3**	594	19.3
450.soplex	581	14.4	582	14.3	**581**	**14.3**	569	14.7	569	14.7	**569**	**14.7**
453.povray	520	10.2	520	10.2	**520**	**10.2**	412	12.9	412	12.9	**412**	**12.9**
454.calculix	653	12.6	**653**	**12.6**	653	12.6	548	15.0	**548**	**15.0**	549	15.0
459.GemsFDTD	773	13.7	**773**	**13.7**	773	13.7	**616**	**17.2**	616	17.2	615	17.2
465.tonto	1655	5.95	1655	5.95	**1655**	**5.95**	677	14.5	**678**	**14.5**	678	14.5
470.lbm	370	37.2	370	37.1	**370**	**37.2**	370	37.2	370	37.1	**370**	**37.2**
481.wrf	1264	8.84	1264	8.84	**1264**	**8.84**	**872**	**12.8**	872	12.8	872	12.8
482.sphinx3	**909**	**21.4**	909	21.4	907	21.5	**808**	**24.1**	807	24.2	810	24.1

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

General Notes

```
kernel release 2.6.18-53.el5.

See flags file for details on following settings.

ulimit -s (stack) set to 262144.

Approved srcalt wrfv22 used for 481.wrf

Large pages reserved as follows by root user:
    echo 70 > /proc/sys/vm/nr_hugepages
System configured with libhugetlbfs library for application access to large pages
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
Linux booted with the options:
       maxcpus=1 smt-enabled=off

IBM Post-Link optimization tool used for
    433.milc 435.gromacs 436.cactusADM 453.povray 465.tonto 482.sphinx3

Benchmarks bound to a processor using numactl on the submit command.
```

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 -qnoenablevmx -lhugetlbfs
```

C++ benchmarks:
```
-O5 -qrtti -qnoenablevmx -qstaticlink
```

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

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
`-O5 -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`
481.wrf: `-DNOUNDERSCORE`
482.sphinx3: `-qchars=signed`

Peak Optimization Flags

C benchmarks:

433.milc: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qnoenablevmx -lhugetlbfs`

470.lbm: `basepeak = yes`

482.sphinx3: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -lhugetlbfs`

C++ benchmarks:

444.namd: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O3 -qarch=pwr6e -qtune=pwr6`

447.dealII: `-O5 -qrtti -qnoenablevmx -qstaticlink -Wl,--whole-archive /usr/lib/libsmartheap.a -Wl,--no-whole-archive`

450.soplex: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qstrict -lhugetlbfs`

453.povray: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -lsmartheap`

Fortran benchmarks:

410.bwaves: `-O5 -qsmallstack=dynlenonheap -lhugetlbfs`

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

434.zeusmp: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O3 -qarch=pwr6e -qtune=pwr6 -qxlf90=nosignedzero -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT`

437.leslie3d: `-O3 -qarch=pwr6e -qtune=pwr6 -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT -q64`

459.GemsFDTD: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT -q64`

465.tonto: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -lessl -lsmartheap -lxlf90_r`

Benchmarks using both Fortran and C:

435.gromacs: `-Wl,-q -O2 -qarch=pwr6e -qtune=pwr6 -lhugetlbfs`

436.cactusADM: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O2 -qarch=pwr6e -qtune=pwr6 -qnostrict -lhugetlbfs`

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Peak Optimization Flags (Continued)

454.calculix: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT`

481.wrf: `-O5 -qnoenablevmx -qsmallstack=dynlenonheap -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.20090714.html`

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

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 16:53:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 April 2008.