SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

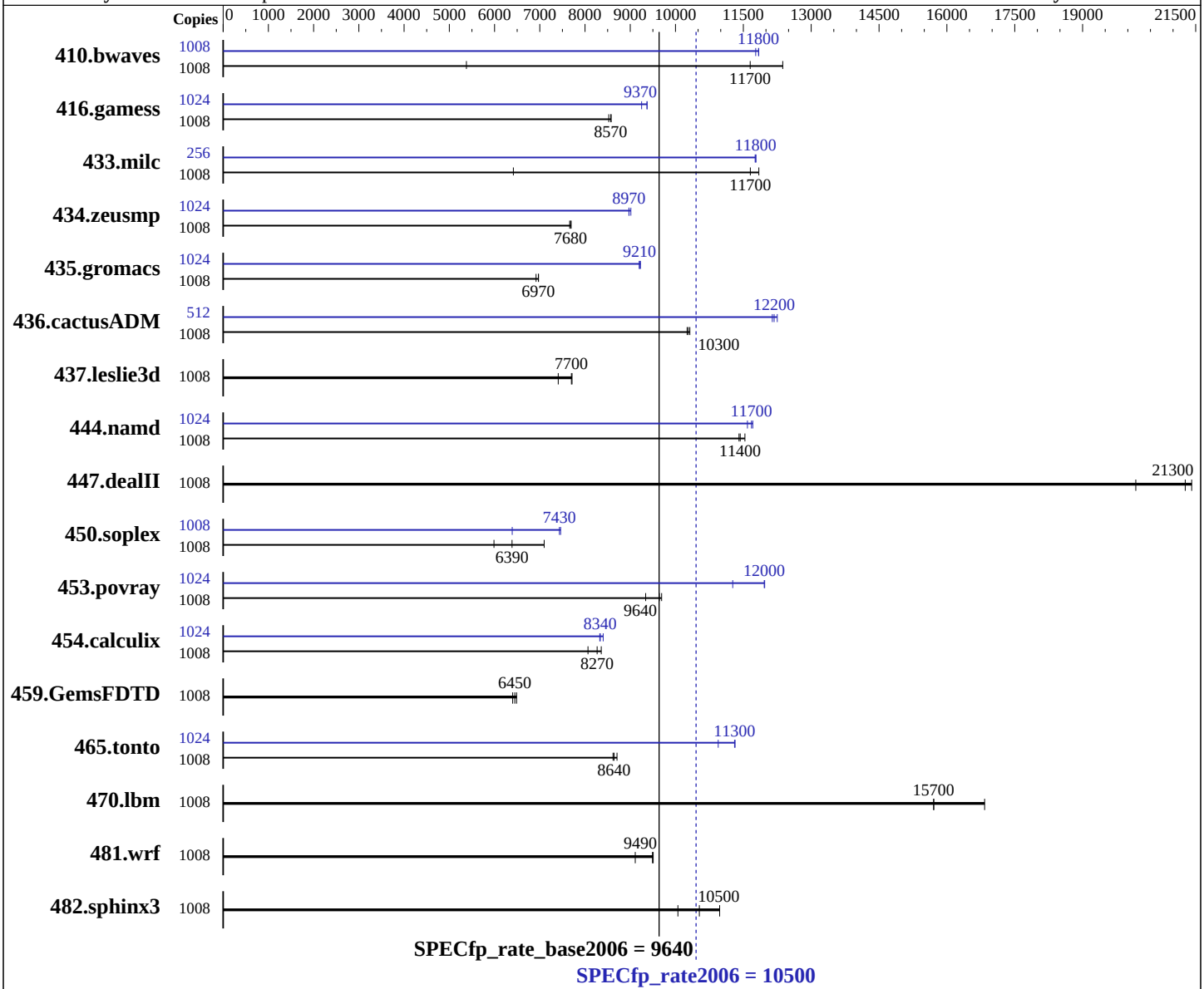
IBM Power 795 (4.0 GHz, 256 core, RedHat)

SPECfp®_rate2006 = 10500

SPECfp_rate_base2006 = 9640

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

Test date: Nov-2010
Hardware Availability: Sep-2010
Software Availability: Nov-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 4.14 GHz
CPU MHz:	4004
FPU:	Integrated
CPU(s) enabled:	256 cores, 32 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	32,64,96,128,160,192,224,256 cores
Primary Cache:	32 KB I + 32 KB D on chip per core

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 6.0 (ppc64), Kernel 2.6.32-71.el6.ppc64
Compiler:	IBM XL C/C++ for Linux, V11.1 Updated with the Nov2010 PTF IBM XL Fortran for Linux, V13.1 Updated with the Nov2010 PTF
Auto Parallel:	No
File System:	ext2
System State:	Run level 3 (multi-user)

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Power 795 (4.0 GHz, 256 core, RedHat)

SPECfp_rate2006 = 10500

SPECfp_rate_base2006 = 9640

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

Test date: Nov-2010
Hardware Availability: Sep-2010
Software Availability: Nov-2010

Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 4 MB I+D on chip per core
Other Cache: None
Memory: 2 TB (256x8 GB) DDR3 1066 MHz
Disk Subsystem: 17x146.8 GB Raid0 SAS SFF 15K RPM
Other Hardware: None

Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: -Post-Link Optimization for Linux on POWER, Version 5.5.0-3
-MicroQuill SmartHeap 9
-Apache C++ Standard Library V4.2.1

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	1008	1107	12400	2547	5380	**1176**	**11700**	1008	1164	11800	**1157**	**11800**	1157	11800
416.gamess	1008	2315	8530	**2303**	**8570**	2301	8580	1024	**2140**	**9370**	2167	9250	2139	9370
433.milc	1008	781	11800	1442	6420	**794**	**11700**	256	**200**	**11800**	200	11800	200	11800
434.zeusmp	1008	**1194**	**7680**	1192	7690	1197	7660	1024	**1038**	**8970**	1034	9010	1039	8970
435.gromacs	1008	1040	6920	**1033**	**6970**	1032	6970	1024	792	9230	**794**	**9210**	795	9200
436.cactusADM	1008	1167	10300	1174	10300	**1171**	**10300**	512	504	12100	**502**	**12200**	499	12200
437.leslie3d	1008	1228	7710	**1231**	**7700**	1279	7410	1008	1228	7710	**1231**	**7700**	1279	7410
444.namd	1008	**707**	**11400**	709	11400	701	11500	1024	709	11600	701	11700	**703**	**11700**
447.dealII	1008	539	21400	**542**	**21300**	572	20200	1008	539	21400	**542**	**21300**	572	20200
450.soplex	1008	1404	5990	**1316**	**6390**	1185	7100	1008	1315	6390	**1131**	**7430**	1127	7460
453.povray	1008	574	9340	**556**	**9640**	553	9690	1024	484	11300	**455**	**12000**	455	12000
454.calculix	1008	995	8360	1031	8070	**1006**	**8270**	1024	1006	8400	**1013**	**8340**	1015	8330
459.GemsFDTD	1008	1671	6400	**1659**	**6450**	1649	6490	1008	1671	6400	**1659**	**6450**	1649	6490
465.tonto	1008	1139	8710	1151	8620	**1148**	**8640**	1024	921	10900	890	11300	**891**	**11300**
470.lbm	1008	823	16800	882	15700	**882**	**15700**	1008	823	16800	882	15700	**882**	**15700**
481.wrf	1008	1184	9510	**1186**	**9490**	1236	9110	1008	1184	9510	**1186**	**9490**	1236	9110
482.sphinx3	1008	1790	11000	**1866**	**10500**	1954	10100	1008	1790	11000	**1866**	**10500**	1954	10100

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

Peak Tuning Notes

```
Post-Link optimization tool used for:
433.milc 435.gromacs 436.cactusADM 450.soplex 482.sphinx3
     with options -O4 -nodp
434.zeusmp
     with options -O4 -vrox -nodp
437.leslie3d 444.namd
     with options -O3 -lu -1 -nodp -sdp 9
465.tonto
     with options -O4
470.lbm
     with options -kr -O4 -sdp 9 -vrox -m power7
```

Submit Notes

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

Operating System Notes

```
 ulimit -s (stack) set to 2097152.
 ulimit -n (open files) set to 20480.
 ulimit -u (user processes) set to unlimited
Large pages reserved as follows by root user:
      echo 68608 > /proc/sys/vm/nr_overcommit_hugepages
The following environment varibles were set before the runspec command:
      export HUGETLB_VERBOSE=0
      export HUGETLB_MORECORE=yes
      export HUGETLB_ELFMAP=RW
      export XLFRTEOPTS=intrinthds=1
```

General Notes

```
447.dealII (peak): "apache_stdcxx_4_2_1" src.alt was used.
447.dealII (base): "apache_stdcxx_4_2_1" src.alt was used.

The Apache C++ Standard Library V4.2.1 was installed from
http://stdcxx.apache.org/download.html using:
    gmake BUILDTYPE=8d CONFIG=gcc.config
```

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`

Continued on next page

Base Portability Flags (Continued)

436.cactusADM: `-qfixed -qextname`
437.leslie3d: `-qfixed`
454.calculix: `-qfixed -qextname`
481.wrf: `-DNOUNDERSCORE`
482.sphinx3: `-qchars=signed`

Base Optimization Flags

C benchmarks:
`-O5 -lhugetlbfs`

C++ benchmarks:
`-O4 -qrtti`
`-qcpp_stdinc=/root/stdcxx421/include/ansi:/root/stdcxx421/include:/opt/ibmcmp/vacpp/11.1/include`
`-lhugetlbfs -L/root/stdcxx421/lib -R/root/stdcxx421/lib -lstd8d`

Fortran benchmarks:
`-O5 -qalias=nostd -lhugetlbfs`

Benchmarks using both Fortran and C:
`-O5 -qalias=nostd -lhugetlbfs`

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`

Continued on next page

Peak Compiler Invocation (Continued)

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 -DSPEC_CPU_LP64
437.leslie3d: -qfixed
453.povray: -DSPEC_CPU_LP64
454.calculix: -qfixed -qextname
481.wrf: -DNOUNDERSCORE
482.sphinx3: -qchars=signed

Peak Optimization Flags

C benchmarks:

433.milc: -Wl,-q -O5 -lhugetlbfs

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -lhugetlbfs

447.dealII: basepeak = yes

450.soplex: -Wl,-q -O3 -qarch=auto -qtune=auto -lhugetlbfs

453.povray: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qsimd -q64
-lsmartheap64

Fortran benchmarks:

410.bwaves: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -q64 -lhugetlbfs

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

Continued on next page

Peak Optimization Flags (Continued)

434.zeusmp: `-O5 -qsmallstack=dynlenonheap -qalias=nostd -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-align`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `basepeak = yes`

465.tonto: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qsimd -lhugetlbfs`

Benchmarks using both Fortran and C:

435.gromacs: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qsimd -lhugetlbfs`

436.cactusADM: `-Wl,-q -O4 -q64 -qsimd -qnostrict -qsmallstack=dynlenonheap -qalias=nostd -lhugetlbfs`

454.calculix: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -lhugetlbfs`

481.wrf: `basepeak = yes`

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.20101123.00.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20101123.00.xml`

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Power 795 (4.0 GHz, 256 core, RedHat)

SPECfp_rate2006 = 10500

SPECfp_rate_base2006 = 9640

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

Test date: Nov-2010
Hardware Availability: Sep-2010
Software Availability: Nov-2010

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 Wed Jul 23 14:26:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 23 November 2010.