SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

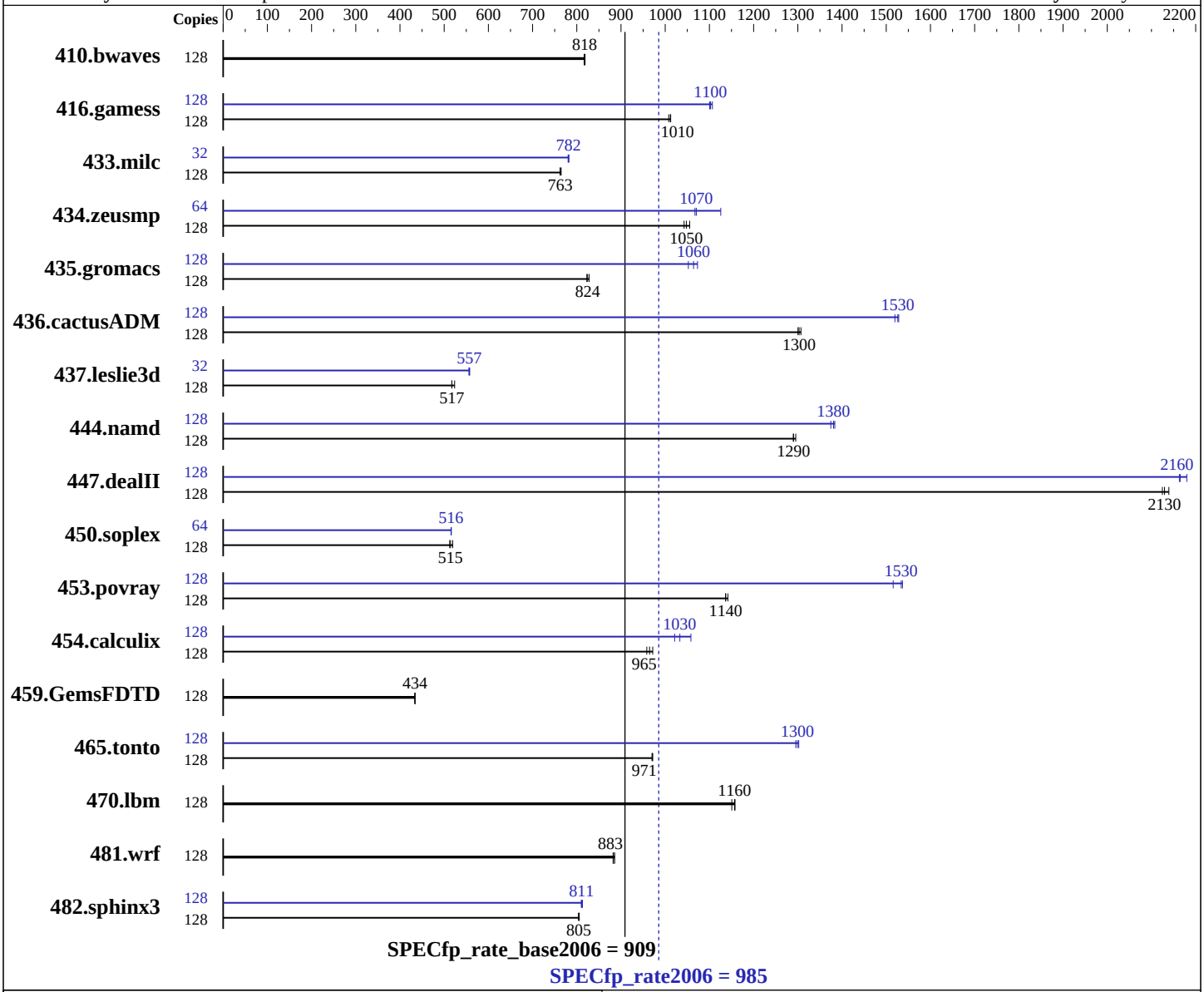
IBM Power 755 (3.61 GHz, 32 core)

SPECfp®_rate2006 = 985

SPECfp_rate_base2006 = 909

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

Test date: Mar-2011
Hardware Availability: May-2011
Software Availability: May-2011



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.86 GHz
CPU MHz:	3612
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	32 cores
Primary Cache:	32 KB I + 32 KB D on chip per core

Continued on next page

Software

Operating System:	IBM AIX V7.1 with Service Pack 3
Compiler:	IBM XL C/C++ for AIX, V11.1 Version: 11.01.0000.0005 IBM XL Fortran for AIX, V13.1 Version: 13.01.0000.0005
Auto Parallel:	No
File System:	AIX/JFS2

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Power 755 (3.61 GHz, 32 core)

SPECfp_rate2006 = 985

SPECfp_rate_base2006 = 909

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

Test date: Mar-2011
Hardware Availability: May-2011
Software Availability: May-2011

Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 4 MB I+D on chip per core
Other Cache: None
Memory: 256 GB (32 x 8 GB) DDR3 1066 MHz
Disk Subsystem: 6 x 146.8 GB Raid0 SAS SFF 15K RPM
Other Hardware: None

System State: Multi-user
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	128	2125	819	**2127**	**818**	2130	817	128	2125	819	**2127**	**818**	2130	817
416.gamess	128	**2478**	**1010**	2476	1010	2486	1010	128	2277	1100	2265	1110	**2273**	**1100**
433.milc	128	1537	765	1541	762	**1540**	**763**	32	376	780	376	782	**376**	**782**
434.zeusmp	128	1117	1040	1104	1060	**1112**	**1050**	64	**544**	**1070**	517	1130	546	1070
435.gromacs	128	1104	828	1111	823	**1108**	**824**	128	868	1050	852	1070	**859**	**1060**
436.cactusADM	128	**1174**	**1300**	1176	1300	1170	1310	128	1001	1530	1007	1520	**1002**	**1530**
437.leslie3d	128	2298	524	2326	517	**2325**	**517**	32	539	558	541	556	**540**	**557**
444.namd	128	793	1300	**796**	**1290**	796	1290	128	**743**	**1380**	742	1380	747	1370
447.dealII	128	689	2120	**688**	**2130**	684	2140	128	**676**	**2160**	677	2160	672	2180
450.soplex	128	2083	512	**2075**	**515**	2056	519	64	1035	515	**1035**	**516**	1034	516
453.povray	128	599	1140	596	1140	**599**	**1140**	128	**444**	**1530**	443	1540	449	1520
454.calculix	128	**1095**	**965**	1087	972	1102	958	128	1034	1020	**1022**	**1030**	998	1060
459.GemsFDTD	128	**3130**	**434**	3131	434	3130	434	128	**3130**	**434**	3131	434	3130	434
465.tonto	128	1296	972	**1297**	**971**	1298	970	128	967	1300	**969**	**1300**	972	1300
470.lbm	128	**1520**	**1160**	1519	1160	1529	1150	128	**1520**	**1160**	1519	1160	1529	1150
481.wrf	128	**1619**	**883**	1614	886	1621	882	128	**1619**	**883**	1614	886	1621	882
482.sphinx3	128	3097	806	3104	804	**3100**	**805**	128	**3077**	**811**	3069	813	3079	810

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

Peak Tuning Notes

```
fdpr binary optimization tool used for:
 433.milc with options:
  -O4 -nodp -m power7
 434.zeusmp with options:
  -O4 -vrox -nodp -m power7
 436.cactusADM 450.soplex with options:
  -O3 -lu -1 -nodp -sdp 9 -m power7
 437.leslie3d with options:
  -O4 -vrox -m power7
 465.tonto with options:
  -O4 -m power7
 482.sphinx3 with options:
  -O4 -sdp 9 -vrox -m power7
```

Submit Notes

```
The config file option 'submit' was used
 to assign benchmark copy to specific kernel thread using
 the "bindprocessor" command (see flags file for details).
```

Operating System Notes

```
All ulimits set to unlimited.

12800 16M large pages defined with vmo command
```

General Notes

```
Environment variables set by runspec before the start of the run:
 MALLOCOPTIONS = "pool"
 MEMORY_AFFINITY = "MCM"
 XLFRTEOPTS = "intrinthds=1"

 The "IBM Power 750 Express (3.61 GHz)" and the "IBM Power 755 (3.61 GHz)"
 are electronically equivalent. The results have been measured on the
 "IBM Power Express 750 (3.61 GHz)".
```

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`

Continued on next page

Base Portability Flags (Continued)

482.sphinx3: `-qchars=signed`

Base Optimization Flags

C benchmarks:
`-qipa=threads -bmaxdata:0x40000000 -qlargepage -O5 -D_ILS_MACROS -blpdata`

C++ benchmarks:
`-qipa=threads -bmaxdata:0x50000000 -qlargepage -O5 -qsimd -qvecnvol -D_ILS_MACROS -qrtti=all -D__IBM_FAST_VECTOR -D__IBM_FAST_SET_MAP_ITERATOR -blpdata`

Fortran benchmarks:
`-qipa=threads -bmaxdata:0x60000000 -qlargepage -O5 -qsmallstack=dynlenonheap -qalias=nostd -blpdata`

Benchmarks using both Fortran and C:
`-qipa=threads -bmaxdata:0x60000000 -qlargepage -O5 -D_ILS_MACROS -qsmallstack=dynlenonheap -qalias=nostd -blpdata`

Base Other Flags

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

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

Fortran benchmarks:
`-qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qsuppress=1500-036`

Benchmarks using both Fortran and C:
`-qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qsuppress=1500-036`

Peak Compiler Invocation

C benchmarks:
`/usr/vac/bin/xlc -qlanglvl=extc99`

C++ benchmarks:
`/usr/vacpp/bin/xlC`

Continued on next page

Peak Compiler Invocation (Continued)

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:

433.milc: -qipa=threads -bmaxdata:0x40000000 -O5 -qlargepage
-D_ILS_MACROS -qrestrict -qprefetch=aggressive
-qalign=natural -blpdata -btextpsize:64K

470.lbm: basepeak = yes

482.sphinx3: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O5
-qlargepage -D_ILS_MACROS -blpdata -btextpsize:64K

C++ benchmarks:

444.namd: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O5 -q64
-qsimd -qvecnvol -qlargepage -D_ILS_MACROS -blpdata
-btextpsize:64K

447.dealII: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O4 -qsimd -qvecnvol -D_ILS_MACROS
-qrtti=all -D__IBM_FAST_VECTOR -D__IBM_FAST_SET_MAP_ITERATOR
-blpdata -btextpsize:64K

450.soplex: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -q64 -qlargepage
-D_ILS_MACROS -blpdata -btextpsize:64K

Continued on next page

Peak Optimization Flags (Continued)

453.povray: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qsimd -qvecnvol -qlargepage -D_ILS_MACROS -qalign=natural -blpdata -btextpsize:64K

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -qipa=threads -bmaxdata:0x40000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr5 -qlargepage -qalias=nostd -blpdata -btextpsize:64K

434.zeusmp: -bmaxdata:0x40000000 -O3 -qarch=auto -qtune=auto -qlargepage -qxlf90=nosignedzero -blpdata -btextpsize:64K

437.leslie3d: -O5 -q64 -blpdata -btextpsize:64K

459.GemsFDTD: basepeak = yes

465.tonto: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qsimd -qvecnvol -blpdata -btextpsize:64K

Benchmarks using both Fortran and C:

435.gromacs: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qsimd -qvecnvol -D_ILS_MACROS -blpdata -btextpsize:64K

436.cactusADM: -qipa=threads -bmaxdata:0x60000000 -O4 -qsimd -qvecnvol -D_ILS_MACROS -qnostrict -blpdata -btextpsize:64K

454.calculix: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qsimd -qvecnvol -qlargepage -D_ILS_MACROS -blpdata -btextpsize:64K

481.wrf: basepeak = yes

Peak Other Flags

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

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

450.soplex: -qsuppress=1500-036

Continued on next page

Peak Other Flags (Continued)

Fortran benchmarks (except as noted below):
`-qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qsuppress=1500-036`

434.zeusmp: `-qsuppress=1500-010 -qsuppress=cmpmsg -qsuppress=1500-036`

437.leslie3d: `-qsuppress=1500-010 -qsuppress=cmpmsg -qsuppress=1500-036`

Benchmarks using both Fortran and C:
`-qipa=noobject -qsuppress=1500-010 -qsuppress=cmpmsg -qsuppress=1500-036`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-XL.20100901.html
http://www.spec.org/cpu2006/flags/IBM-AIX.20100303.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-XL.20100901.xml
http://www.spec.org/cpu2006/flags/IBM-AIX.20100303.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 Wed Jul 23 18:50:14 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 April 2011.