SPEC® CFP2006 Result

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IBM Corporation

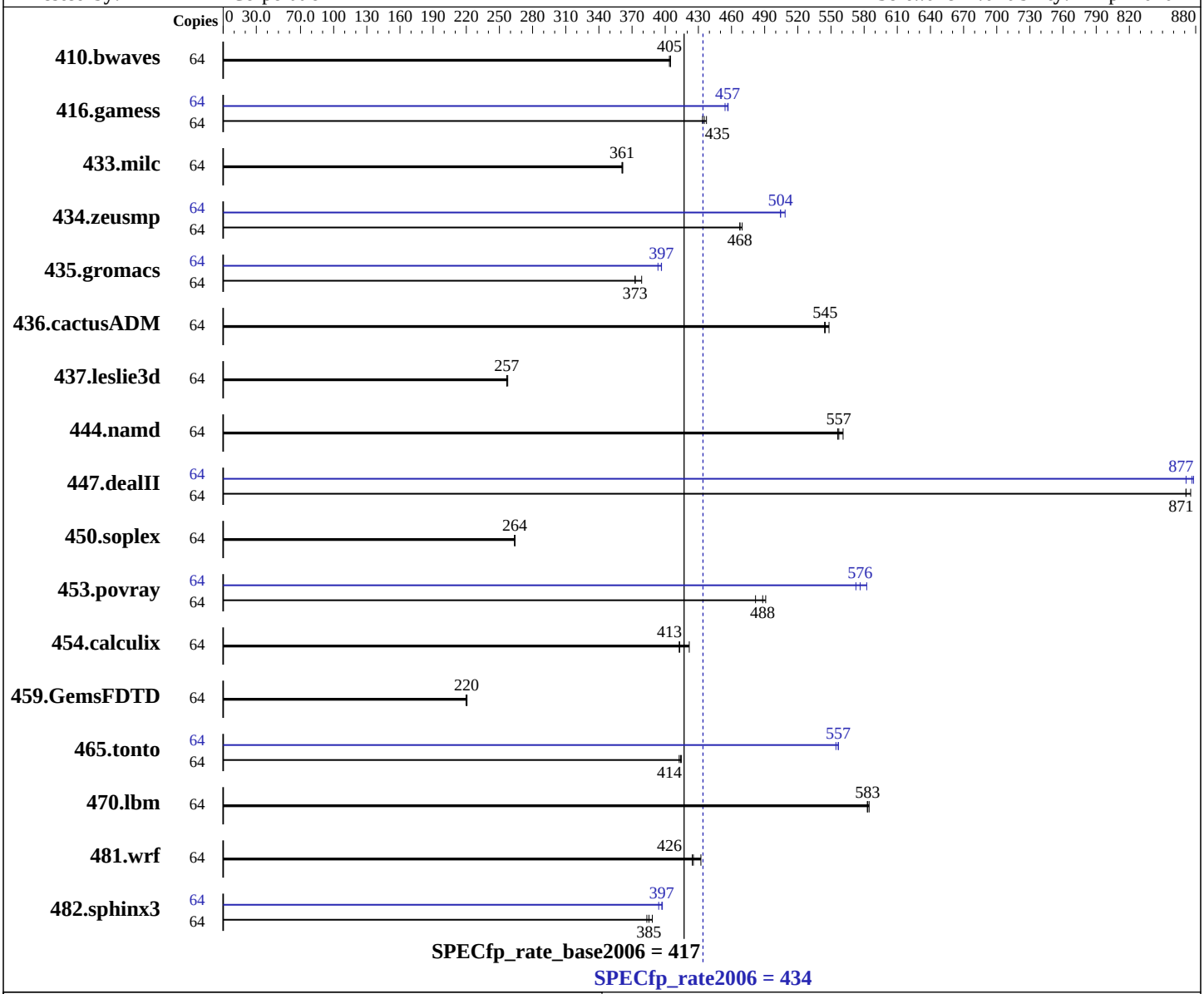
IBM BladeCenter PS702 Express (3.0 GHz, 16 core)

SPECfp®_rate2006 = 434

SPECfp_rate_base2006 = 417

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

Test date: Mar-2010
Hardware Availability: Jun-2010
Software Availability: Apr-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.30 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	16 cores
Primary Cache:	32 KB I + 32 KB D on chip per core

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Software

Operating System:	IBM AIX V6.1 with the 6100-05 Technology Level
Compiler:	IBM XL C/C++ for AIX, V11.1 IBM XL Fortran for AIX, V13.1
Auto Parallel:	No
File System:	AIX/JFS2
System State:	Multi-user
Base Pointers:	32-bit
Peak Pointers:	32-bit

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Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 4 MB I+D on chip per core
Other Cache: None
Memory: 128 GB (32x4 GB) DDR3 1066 MHz
Disk Subsystem: 1x300 GB SAS SFF 10K RPM
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	2149	405	2154	404	**2149**	**405**	64	2149	405	2154	404	**2149**	**405**
416.gamess	64	2865	437	2889	434	**2878**	**435**	64	2742	457	**2745**	**457**	2759	454
433.milc	64	**1627**	**361**	1627	361	1625	362	64	**1627**	**361**	1627	361	1625	362
434.zeusmp	64	1240	470	**1245**	**468**	1246	468	64	**1155**	**504**	1145	508	1155	504
435.gromacs	64	1207	379	**1226**	**373**	1226	373	64	1152	397	**1152**	**397**	1161	393
436.cactusADM	64	1405	544	**1404**	**545**	1395	548	64	1405	544	**1404**	**545**	1395	548
437.leslie3d	64	**2343**	**257**	2344	257	2336	258	64	**2343**	**257**	2344	257	2336	258
444.namd	64	923	556	**921**	**557**	915	561	64	923	556	**921**	**557**	915	561
447.dealII	64	**840**	**871**	840	871	836	875	64	840	871	**835**	**877**	834	878
450.soplex	64	2021	264	2025	264	**2022**	**264**	64	2021	264	2025	264	**2022**	**264**
453.povray	64	**697**	**488**	707	482	694	491	64	**591**	**576**	585	582	595	573
454.calculix	64	1252	422	1280	413	**1278**	**413**	64	1252	422	1280	413	**1278**	**413**
459.GemsFDTD	64	**3081**	**220**	3090	220	3077	221	64	**3081**	**220**	3090	220	3077	221
465.tonto	64	1519	415	**1522**	**414**	1526	413	64	**1132**	**557**	1136	554	1131	557
470.lbm	64	**1508**	**583**	1504	585	1509	583	64	**1508**	**583**	1504	585	1509	583
481.wrf	64	**1680**	**426**	1654	432	1684	424	64	**1680**	**426**	1654	432	1684	424
482.sphinx3	64	**3237**	**385**	3253	383	3212	388	64	3165	394	3138	397	**3143**	**397**

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
to assign benchmark copy to specific kernel thread using
the "bindprocessor" command (see flags file for details).
```

Operating System Notes

```
Environment variables set by runspec before the start of the run:
MALLOCOPTIONS = "pool"
MEMORY_AFFINITY = "MCM"
XLFRTEOPTS = "intrinthds=1"
all ulimits set to unlimited.
4096 16M large pages defined with vmo command
```

Base Compiler Invocation

C benchmarks:
/usr/vacpp/bin/xlc -qlanglvl=extc99

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

Fortran benchmarks:
/usr/bin/xlf95

Benchmarks using both Fortran and C:
/usr/vacpp/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: -DNOUNDERSCORE -DSPEC_CPU_AIX
482.sphinx3: -qchars=signed

Base Optimization Flags

C benchmarks:
-bmaxdata:0x40000000 -O5 -qlargepage -blpdata -D_ILS_MACROS

C++ benchmarks:
-bmaxdata:0x50000000 -O5 -qlargepage -blpdata -D_ILS_MACROS
-qrtti=all -D__IBM_FAST_VECTOR -D__IBM_FAST_SET_MAP_ITERATOR

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

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

Base Other Flags

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

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

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

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

Peak Compiler Invocation

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

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

Fortran benchmarks:
```
/usr/bin/xlf95
```

Benchmarks using both Fortran and C:
```
/usr/vacpp/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: `-DNOUNDERSCORE -DSPEC_CPU_AIX`
482.sphinx3: `-qchars=signed`

Peak Optimization Flags

C benchmarks:

433.milc: `basepeak = yes`

Continued on next page

Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

482.sphinx3: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6 -qlargepage -blpdata -D_ILS_MACROS -bmaxdata:0x40000000

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -O5 -D_ILS_MACROS -qrtti=all -blpdata -D__IBM_FAST_VECTOR -D__IBM_FAST_SET_MAP_ITERATOR -btextpsize:64K -bmaxdata:0x50000000

450.soplex: basepeak = yes

453.povray: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -D_ILS_MACROS -qalign=natural -btextpsize:64K -bmaxdata:0x50000000

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -blpdata -qalias=nostd -bmaxdata:0x40000000

434.zeusmp: -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qlargepage -blpdata -qarch=auto -qenablevmx -qvecnvol -qxlf90=nosignedzero -bmaxdata:0x40000000

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -blpdata -btextpsize:64K -bmaxdata:0x50000000

Benchmarks using both Fortran and C:

435.gromacs: -O5 -qarch=pwr6 -D_ILS_MACROS -bmaxdata:0x60000000

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

Peak Other Flags

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

482.sphinx3: `-w -qsuppress=1500-036 -qipa=threads`

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

447.dealII: `-w -qsuppress=1500-036 -qipa=threads`

453.povray: `-w -qsuppress=1500-036 -qipa=threads`

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

416.gamess: `-w -qsuppress=1500-036 -qsuppress=cmpmsg -qipa=threads`

434.zeusmp: `-w -qsuppress=1500-036 -qsuppress=cmpmsg -qipa=threads`

465.tonto: `-w -qsuppress=1500-036 -qsuppress=cmpmsg -qipa=threads`

Benchmarks using both Fortran and C (except as noted below):
`-w -qsuppress=1500-036 -qipa=threads -qsuppress=cmpmsg -qipa=noobject`

435.gromacs: `-w -qsuppress=1500-036 -qipa=threads -qsuppress=cmpmsg`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-AIX.20100303.html
http://www.spec.org/cpu2006/flags/IBM-XL.20100427.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-AIX.20100303.xml
http://www.spec.org/cpu2006/flags/IBM-XL.20100427.xml

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