SPEC® CFP2006 Result

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IBM Corporation

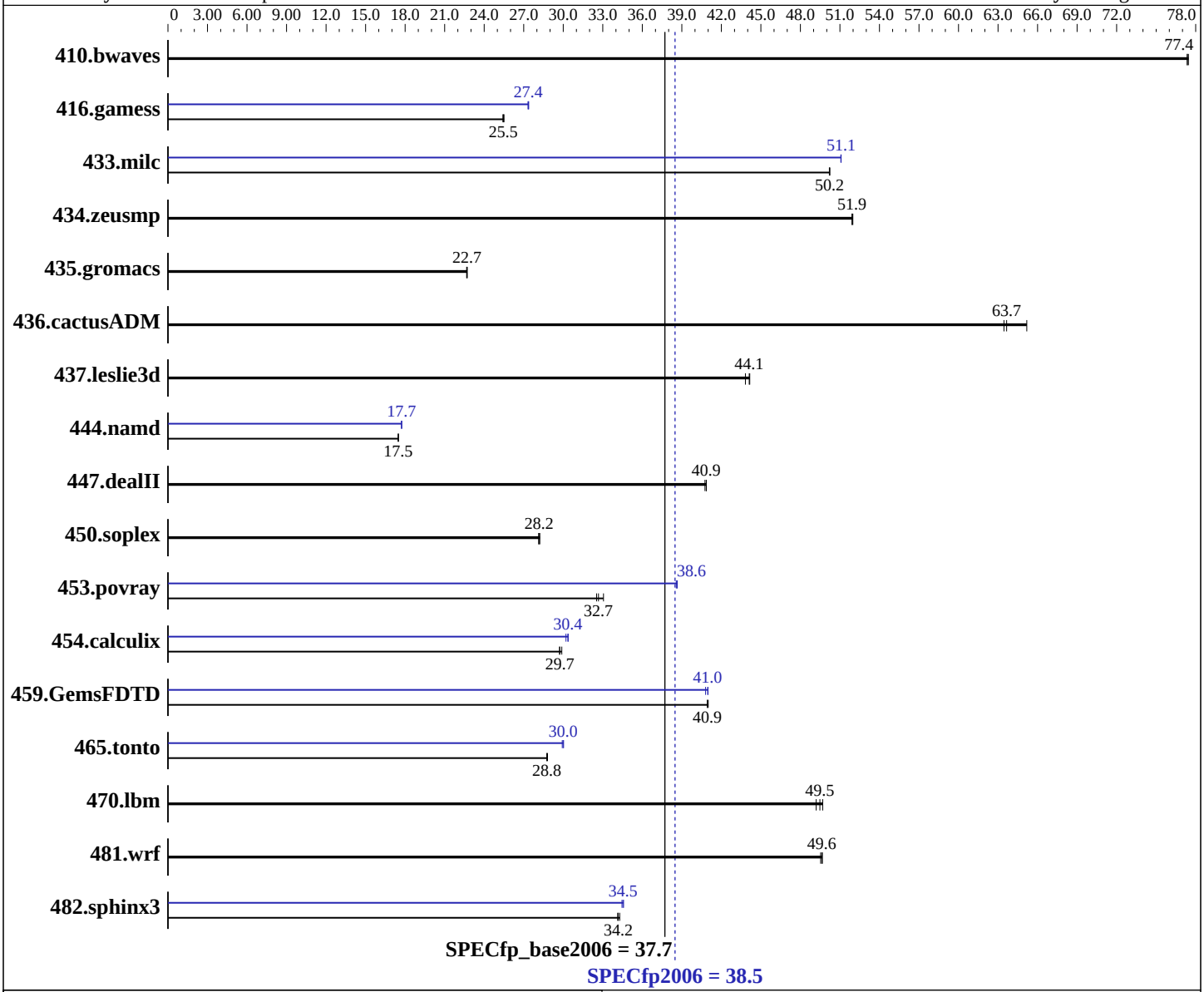
IBM System x3250 M4 (Intel Pentium G620)

SPECfp®2006 = 38.5

SPECfp_base2006 = 37.7

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

Test date: Nov-2011
Hardware Availability: Oct-2011
Software Availability: Aug-2011



Hardware

CPU Name:	Intel Pentium G620
CPU Characteristics:	
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	Red Hat Enterprise Linux Server Release 6.1, Kernel 2.6.32-131.0.15.el6.x86_64
Compiler:	C/C++/Fortran: Version 12.1.0.225 of Intel Compiler XE Build 20110803
Auto Parallel:	Yes
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache: 3 MB I+D on chip per chip
Other Cache: None
Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC, running at 1066 MHz)
Disk Subsystem: 1 x 146 GB SAS, 15000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	176	77.4	175	77.5	**176**	**77.4**	176	77.4	175	77.5	**176**	**77.4**
416.gamess	**769**	**25.5**	768	25.5	770	25.4	715	27.4	**716**	**27.4**	717	27.3
433.milc	183	50.2	183	50.2	**183**	**50.2**	**180**	**51.1**	180	51.1	180	51.1
434.zeusmp	175	52.0	175	51.9	**175**	**51.9**	175	52.0	175	51.9	**175**	**51.9**
435.gromacs	315	22.7	**315**	**22.7**	314	22.7	315	22.7	**315**	**22.7**	314	22.7
436.cactusADM	183	65.2	188	63.4	**188**	**63.7**	183	65.2	188	63.4	**188**	**63.7**
437.leslie3d	213	44.2	**213**	**44.1**	214	43.8	213	44.2	**213**	**44.1**	214	43.8
444.namd	459	17.5	459	17.5	**459**	**17.5**	452	17.7	452	17.7	**452**	**17.7**
447.dealII	281	40.8	280	40.9	**280**	**40.9**	281	40.8	280	40.9	**280**	**40.9**
450.soplex	296	28.2	296	28.1	**296**	**28.2**	296	28.2	296	28.1	**296**	**28.2**
453.povray	**163**	**32.7**	161	33.1	164	32.5	**138**	**38.6**	138	38.7	138	38.6
454.calculix	**277**	**29.7**	276	29.9	278	29.7	**272**	**30.4**	272	30.4	273	30.2
459.GemsFDTD	**259**	**40.9**	259	40.9	259	41.0	259	41.0	260	40.8	**259**	**41.0**
465.tonto	342	28.8	342	28.8	**342**	**28.8**	329	29.9	328	30.0	**328**	**30.0**
470.lbm	276	49.7	279	49.2	**278**	**49.5**	276	49.7	279	49.2	**278**	**49.5**
481.wrf	225	49.5	225	49.7	**225**	**49.6**	225	49.5	225	49.7	**225**	**49.6**
482.sphinx3	571	34.1	**570**	**34.2**	568	34.3	564	34.6	566	34.5	**564**	**34.5**

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

Platform Notes

```
BIOS Settings:
C-State enabled in BIOS
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/SPECcpu12.1/smartheap:/root/SPECcpu12.1/ic12.1-libs/ia32/:/root/SPECcpu12.1/ic12.1-libs/intel64"
OMP_NUM_THREADS = "2"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory
 using RHEL5.5 with binutils-2.17.50.0.6-14.el5
 Stack size set to unlimited using "ulimit -s unlimited"
```

Continued on next page

General Notes (Continued)

```
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1>       /proc/sys/vm/drop_caches
```

Base Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

Base Portability Flags

```
    410.bwaves: -DSPEC_CPU_LP64
    416.gamess: -DSPEC_CPU_LP64
      433.milc: -DSPEC_CPU_LP64
    434.zeusmp: -DSPEC_CPU_LP64
    435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
    437.leslie3d: -DSPEC_CPU_LP64
     444.namd: -DSPEC_CPU_LP64
    447.dealII: -DSPEC_CPU_LP64
    450.soplex: -DSPEC_CPU_LP64
    453.povray: -DSPEC_CPU_LP64
    454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
      465.tonto: -DSPEC_CPU_LP64
      470.lbm: -DSPEC_CPU_LP64
      481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
  482.sphinx3: -DSPEC_CPU_LP64
```

Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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Base Optimization Flags (Continued)

C++ benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch -ansi-alias`

Peak Compiler Invocation

C benchmarks:
`icc -m64`

C++ benchmarks:
`icpc -m64`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-static -auto-ilp32 -ansi-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

444.namd: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-fno-alias -auto-ilp32`

447.dealII: `basepeak = yes`

450.soplex: `basepeak = yes`

453.povray: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll4 -ansi-alias`

Fortran benchmarks:

410.bwaves: `basepeak = yes`

416.gamess: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2 -inline-level=0 -scalar-rep- -static`

434.zeusmp: `basepeak = yes`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2 -inline-level=0 -opt-prefetch -parallel`

465.tonto: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-inline-calloc -opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

435.gromacs: `basepeak = yes`

436.cactusADM: `basepeak = yes`

454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias`

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.html`
`http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111206.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml`
`http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111206.xml`

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