SPEC® CFP2006 Result

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IBM Corporation

IBM System x3100 M4
(Intel Celeron G550, 2.60 GHz)

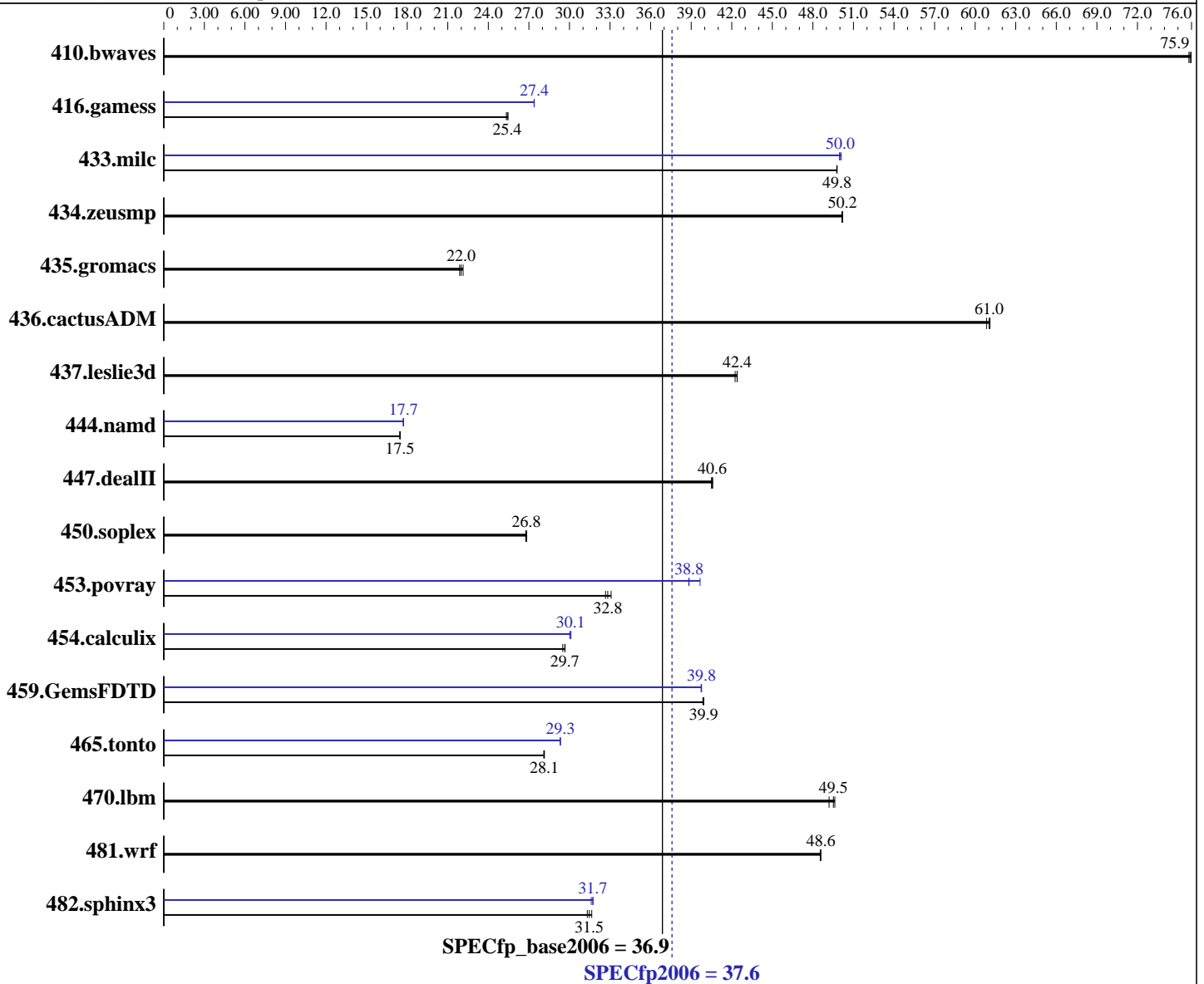$SPECfp^{®}2006 =$ 37.6

$SPECfp\_base2006 =$ 36.9

CPU2006 license: 11	**Test date:**	Sep-2012
Test sponsor: IBM Corporation	**Hardware Availability:**	May-2012
Tested by: IBM Corporation	**Software Availability:**	Dec-2011

0 3.00 6.00 9.00 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 36.0 39.0 42.0 45.0 48.0 51.0 54.0 57.0 60.0 63.0 66.0 69.0 72.0 76.0

Benchmark	Result
410.bwaves	75.9
416.gamess	27.4 / 25.4
433.milc	50.0 / 49.8
434.zeusmp	50.2
435.gromacs	22.0
436.cactusADM	61.0
437.leslie3d	42.4
444.namd	17.7 / 17.5
447.dealII	40.6
450.soplex	26.8
453.povray	38.8 / 32.8
454.calculix	30.1 / 29.7
459.GemsFDTD	39.8 / 39.9
465.tonto	29.3 / 28.1
470.lbm	49.5
481.wrf	48.6
482.sphinx3	31.7 / 31.5

SPECfp_base2006 = 36.9

SPECfp2006 = 37.6

Hardware

CPU Name:	Intel Celeron G550
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

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 6.2 (Santiago) 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4

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L3 Cache:	2 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC, running at 1066 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

	Base						Peak					
Benchmark	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	**179**	**75.9**	179	76.0	179	75.8	**179**	**75.9**	179	76.0	179	75.8
416.gamess	769	25.5	**771**	**25.4**	773	25.3	715	27.4	**715**	**27.4**	715	27.4
433.milc	184	49.8	**184**	**49.8**	184	49.8	183	50.1	**183**	**50.0**	184	50.0
434.zeusmp	**181**	**50.2**	181	50.2	181	50.1	**181**	**50.2**	181	50.2	181	50.1
435.gromacs	**325**	**22.0**	326	21.9	323	22.1	**325**	**22.0**	326	21.9	323	22.1
436.cactusADM	196	60.8	**196**	**61.0**	196	61.1	196	60.8	**196**	**61.0**	196	61.1
437.leslie3d	**222**	**42.4**	222	42.4	222	42.2	**222**	**42.4**	222	42.4	222	42.2
444.namd	**459**	**17.5**	459	17.5	459	17.5	453	17.7	453	17.7	**453**	**17.7**
447.dealII	**282**	**40.6**	282	40.5	282	40.6	**282**	**40.6**	282	40.5	282	40.6
450.soplex	312	26.8	311	26.8	**311**	**26.8**	312	26.8	311	26.8	**311**	**26.8**
453.povray	**162**	**32.8**	163	32.7	161	33.1	134	39.7	**137**	**38.8**	137	38.8
454.calculix	278	29.7	280	29.5	**278**	**29.7**	274	30.1	**274**	**30.1**	275	30.0
459.GemsFDTD	266	39.9	266	39.9	**266**	**39.9**	267	39.8	267	39.7	**267**	**39.8**
465.tonto	**350**	**28.1**	350	28.1	350	28.1	336	29.3	336	29.3	**336**	**29.3**
470.lbm	**277**	**49.5**	277	49.6	279	49.2	**277**	**49.5**	277	49.6	279	49.2
481.wrf	230	48.6	**230**	**48.6**	230	48.5	230	48.6	**230**	**48.6**	230	48.5
482.sphinx3	**619**	**31.5**	622	31.3	616	31.6	**614**	**31.7**	614	31.8	617	31.6

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

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Platform Notes

```
BIOS Settings:
Turbo Mode enabled in BIOS
C-State enabled in BIOS
Sysinfo program /root/SPECcpu1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Wed Sep 19 04:34:53 2012

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

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Hardware Availability: May-2012
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Platform Notes (Continued)

```
   http://www.spec.org/cpu2006/Docs/config.html#sysinfo

  From /proc/cpuinfo
     model name : Intel(R) Celeron(R) CPU G550 @ 2.60GHz
        1 "physical id"s (chips)
        2 "processors"
     cores, siblings (Caution: counting these is hw and system dependent.  The
     following excerpts from /proc/cpuinfo might not be reliable.  Use with
     caution.)
        cpu cores : 2
        siblings  : 2
        physical 0: cores 0 1
     cache size : 2048 KB

  From /proc/meminfo
     MemTotal:       16322724 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.2 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux localhost.localdomain 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13
     EST 2011 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Sep 17 11:39

  SPEC is set to: /root/SPECcpu1.2
     Filesystem     Type     Size  Used Avail Use% Mounted on
     /dev/mapper/VolGroup-lv_root
                    ext4      50G   34G   13G  73% /

  Additional information from dmidecode:
    Memory:
     2x Micron 18JSF1G72AZ-1G6D1 8 GB 1067 MHz 2 rank

  (End of data from sysinfo program)
```

General Notes

```
  Environment variables set by runspec before the start of the run:
  KMP_AFFINITY = "granularity=fine,scatter"
  LD_LIBRARY_PATH = "/root/SPECcpu1.2/libs/32:/root/SPECcpu1.2/libs/64"
  OMP_NUM_THREADS = "2"
```

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General Notes (Continued)

```
 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

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

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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-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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