SPEC® CFP2006 Result
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Fujitsu

PRIMERGY RX100 S7p, Intel Pentium G640, 2.80 GHz

$SPECfp®_rate2006 = $ 60.8

$SPECfp_rate_base2006 = $ 59.5

CPU2006 license: 19	**Test date:** May-2012
Test sponsor: Fujitsu	**Hardware Availability:** May-2012
Tested by: Fujitsu	**Software Availability:** Dec-2011

Copies 0 3.00 7.00 11.0 15.0 19.0 23.0 27.0 31.0 35.0 39.0 43.0 47.0 51.0 55.0 59.0 63.0 67.0 71.0 75.0 79.0 83.0 88.0

Benchmark	Copies	Result
410.bwaves	2	77.6
416.gamess	2	59.2
	2	55.5
433.milc	2	73.4
434.zeusmp	2	61.0
435.gromacs	2	43.5
436.cactusADM	2	72.4
437.leslie3d	2	50.9
	2	50.8
444.namd	2	38.2
	2	37.6
447.dealII	2	86.8
450.soplex	2	47.1
	2	44.6
453.povray	2	83.1
	2	71.1
454.calculix	2	63.3
459.GemsFDTD	2	44.1
465.tonto	2	59.8
	2	57.8
470.lbm	2	70.4
481.wrf	2	76.3
	2	74.9
482.sphinx3	2	55.4
	2	54.6

SPECfp_rate_base2006 = 59.5

SPECfp_rate2006 = 60.8

Hardware

CPU Name:	Intel Pentium G640
CPU Characteristics:	
CPU MHz:	2800
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 12.1.0.293 of Intel C++ Studio XE for Linux;
	Fortran: Version 12.1.0.293 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4

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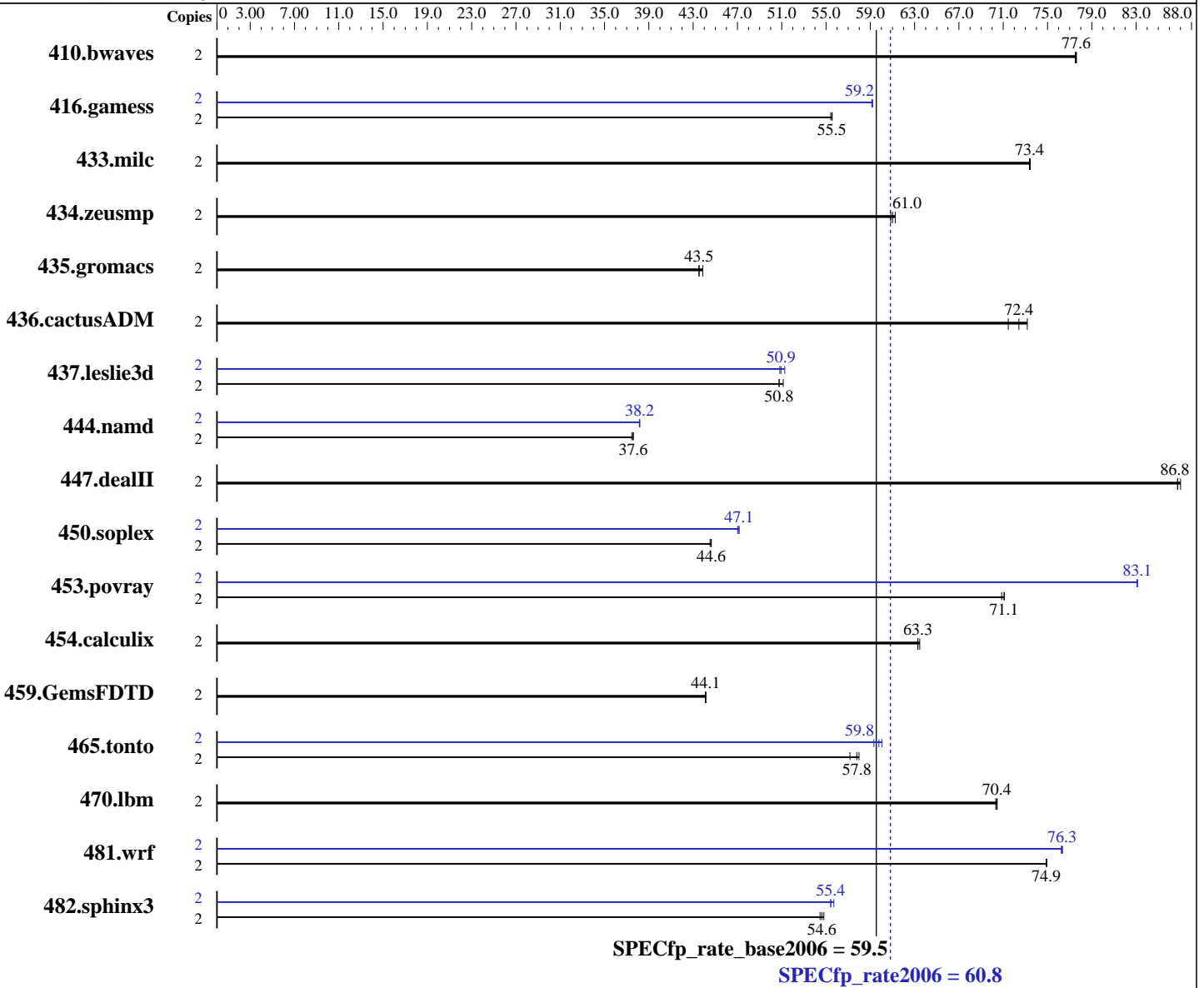
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L3 Cache:	3 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC, running at 1067 MHz and CL7)
Disk Subsystem:	1 x SATA, 500 GB, 7200 RPM
Other Hardware:	None

System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	350	77.6	**350**	**77.6**	351	77.5	2	350	77.6	**350**	**77.6**	351	77.5
416.gamess	2	707	55.4	**705**	**55.5**	705	55.6	2	661	59.2	662	59.1	**662**	**59.2**
433.milc	2	**250**	**73.4**	250	73.4	250	73.4	2	**250**	**73.4**	250	73.4	250	73.4
434.zeusmp	2	**298**	**61.0**	299	60.8	297	61.2	2	**298**	**61.0**	299	60.8	297	61.2
435.gromacs	2	328	43.5	**328**	**43.5**	326	43.9	2	328	43.5	**328**	**43.5**	326	43.9
436.cactusADM	2	**330**	**72.4**	327	73.2	334	71.5	2	**330**	**72.4**	327	73.2	334	71.5
437.leslie3d	2	368	51.1	370	50.8	**370**	**50.8**	2	**369**	**50.9**	367	51.3	370	50.8
444.namd	2	**427**	**37.6**	427	37.6	428	37.5	2	420	38.2	420	38.1	**420**	**38.2**
447.dealII	2	263	87.0	264	86.7	**264**	**86.8**	2	263	87.0	264	86.7	**264**	**86.8**
450.soplex	2	**374**	**44.6**	375	44.5	374	44.6	2	**354**	**47.1**	354	47.1	355	47.0
453.povray	2	150	70.9	150	71.1	**150**	**71.1**	2	128	83.1	**128**	**83.1**	128	83.1
454.calculix	2	260	63.5	261	63.3	**261**	**63.3**	2	260	63.5	261	63.3	**261**	**63.3**
459.GemsFDTD	2	481	44.1	**481**	**44.1**	481	44.1	2	481	44.1	**481**	**44.1**	481	44.1
465.tonto	2	344	57.2	339	58.0	**341**	**57.8**	2	**329**	**59.8**	328	60.0	332	59.3
470.lbm	2	391	70.3	**390**	**70.4**	390	70.5	2	391	70.3	**390**	**70.4**	390	70.5
481.wrf	2	298	74.9	**298**	**74.9**	298	74.9	2	**293**	**76.3**	293	76.3	293	76.2
482.sphinx3	2	**714**	**54.6**	711	54.8	716	54.5	2	703	55.4	**703**	**55.4**	700	55.7

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

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

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64"

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General Notes (Continued)

```
Binaries compiled on a system with 1x E3-1270v2 CPU + 32 GB
memory using RHEL6.2
Transparent Huge Pages disabled with:
echo never  > /sys/kernel/mm/redhat_transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
For information about Fujitsu please visit: http://www.fujitsu.com
```

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 -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3
```
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Base Optimization Flags (Continued)

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3

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

Benchmarks using both Fortran and C:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks (except as noted below):
    icc   -m64

    482.sphinx3: icc -m32

C++ benchmarks (except as noted below):
    icpc   -m64

    450.soplex: icpc -m32

Fortran benchmarks:
    ifort -m64

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

Peak 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
        453.povray: -DSPEC_CPU_LP64
       454.calculix: -DSPEC_CPU_LP64 -nofor_main
     459.GemsFDTD: -DSPEC_CPU_LP64

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Tested by: Fujitsu

Test date: May-2012

Hardware Availability: May-2012

Software Availability: Dec-2011

Peak Portability Flags (Continued)

```
  465.tonto: -DSPEC_CPU_LP64
   470.lbm: -DSPEC_CPU_LP64
   481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
     433.milc: basepeak = yes

      470.lbm: basepeak = yes

   482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
               -unroll2
```

C++ benchmarks:

```
     444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
               -prof-use(pass 2) -fno-alias -auto-ilp32

     447.dealII: basepeak = yes

    450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
               -prof-use(pass 2) -opt-malloc-options=3

    453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -opt-mem-layout-trans=3(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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

  459.GemsFDTD: basepeak = yes

     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) -unroll4 -auto
               -inline-calloc -opt-malloc-options=3
```

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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/Fujitsu-Platform.20120320.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/Fujitsu-Platform.20120320.xml

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