SPEC® CFP2006 Result

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Fujitsu

PRIMERGY RX4770 M2, Intel Xeon E7-4830 v3, 2.10 GHz

$SPECfp®\_rate2006 = 694$

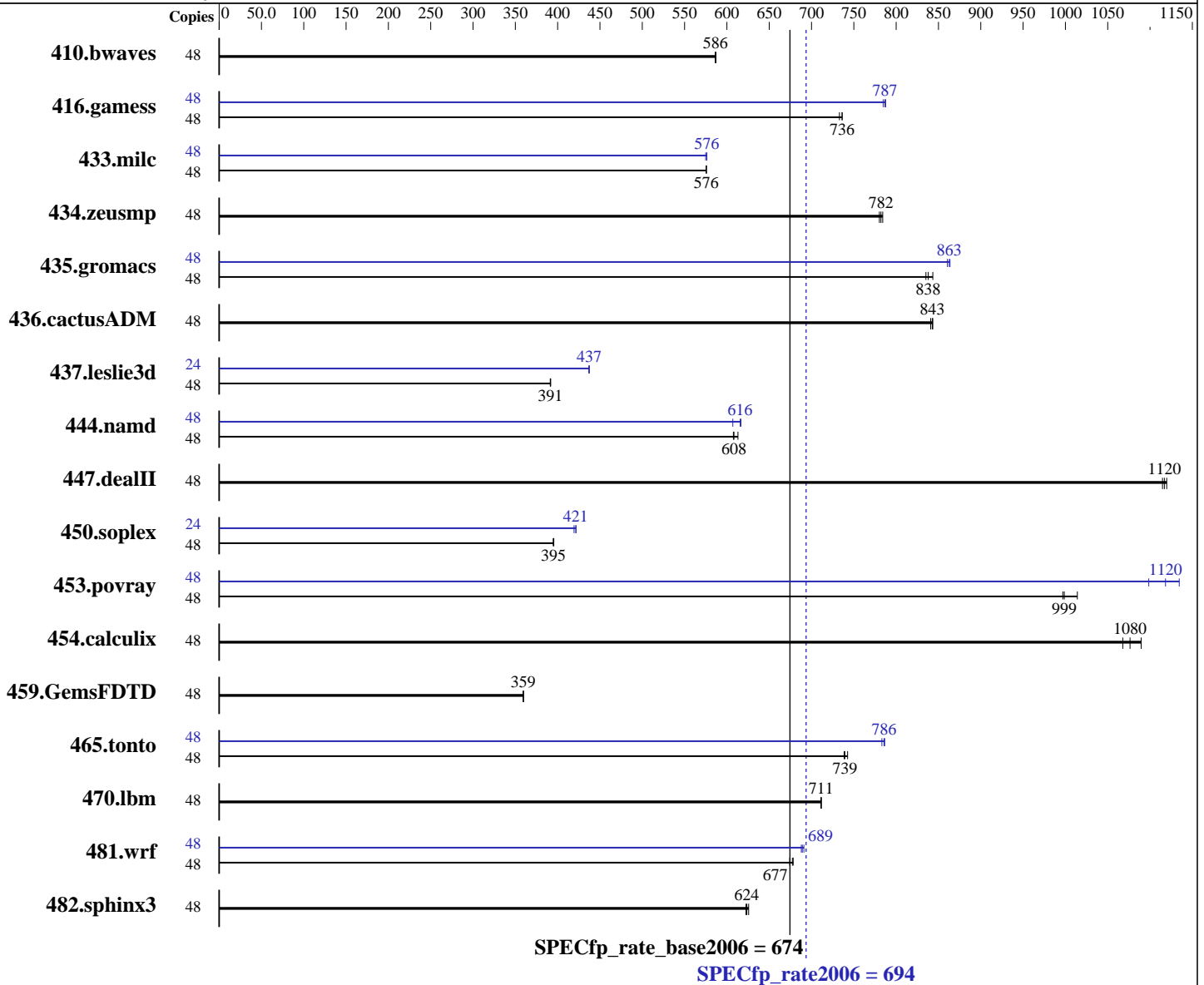$SPECfp\_rate\_base2006 = 674$

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Apr-2015
Hardware Availability: May-2015
Software Availability: Mar-2015

SPECfp_rate_base2006 = 674

SPECfp_rate2006 = 694

Hardware

CPU Name:	Intel Xeon E7-4830 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz:	2100
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 chips
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 7.1 (Maipo) 3.10.0-229.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4

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CPU2006 license: 19	**Test date:** Apr-2015
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L3 Cache:	30 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1333 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x SATA, 600 GB, 10000 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	48	1111	587	1113	586	**1112**	**586**	48	1111	587	1113	586	**1112**	**586**
416.gamess	48	**1277**	**736**	1277	736	1282	733	48	**1195**	**787**	1193	788	1198	785
433.milc	48	**765**	**576**	765	576	766	575	48	**765**	**576**	765	576	766	575
434.zeusmp	48	560	780	557	784	**559**	**782**	48	560	780	557	784	**559**	**782**
435.gromacs	48	406	843	410	835	**409**	**838**	48	398	861	397	864	**397**	**863**
436.cactusADM	48	682	841	**681**	**843**	680	843	48	682	841	**681**	**843**	680	843
437.leslie3d	48	1153	391	1152	392	**1153**	**391**	24	**516**	**437**	516	437	516	437
444.namd	48	628	613	634	608	**633**	**608**	48	**625**	**616**	634	607	624	617
447.dealII	48	493	1110	490	1120	**492**	**1120**	48	493	1110	490	1120	**492**	**1120**
450.soplex	48	**1013**	**395**	1014	395	1012	395	24	**475**	**421**	477	419	475	422
453.povray	48	252	1010	256	997	**256**	**999**	48	232	1100	225	1130	**228**	**1120**
454.calculix	48	**368**	**1080**	363	1090	371	1070	48	**368**	**1080**	363	1090	371	1070
459.GemsFDTD	48	1416	360	1417	359	**1417**	**359**	48	1416	360	1417	359	**1417**	**359**
465.tonto	48	636	743	**639**	**739**	640	739	48	603	783	601	786	**601**	**786**
470.lbm	48	**927**	**711**	927	711	927	711	48	**927**	**711**	927	711	927	711
481.wrf	48	795	674	**792**	**677**	790	678	48	**778**	**689**	779	688	776	691
482.sphinx3	48	1495	626	**1500**	**624**	1503	623	48	1495	626	**1500**	**624**	1503	623

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"

Platform Notes

BIOS configuration:
Energy Performance = Performance

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$SPECfp\_rate\_base2006 =$ 674

CPU2006 license: 19
Test sponsor: Fujitsu
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Test date: Apr-2015
Hardware Availability: May-2015
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General Notes

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

 Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 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
```

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SPECfp_rate2006 =   694

SPECfp_rate_base2006 =   674

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Apr-2015
Hardware Availability: May-2015
Software Availability: Mar-2015

Base Optimization Flags

C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias
```

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias
```

Peak Compiler Invocation

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

C++ benchmarks (except as noted below):
```
icpc   -m64
```
```
450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

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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GHz

SPECfp_rate2006 = 694

SPECfp_rate_base2006 = 674

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Apr-2015
Hardware Availability: May-2015
Software Availability: Mar-2015

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
482.sphinx3: -DSPEC_CPU_LP64
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
          -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
444.namd: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
            -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
            -opt-malloc-options=3

453.povray: -xCORE-AVX2(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: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes
```

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Peak Optimization Flags (Continued)

465.tonto: `-xCORE-AVX2(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`

Benchmarks using both Fortran and C:

435.gromacs: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
`-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
`-opt-prefetch -auto-ilp32`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.html
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml

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

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