SPEC® CFP2006 Result
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Fujitsu

PRIMERGY RX4770 M1, Intel Xeon E7-4830 v2, 2.20 GHz

$SPECfp^®_rate2006 = $ **1080**
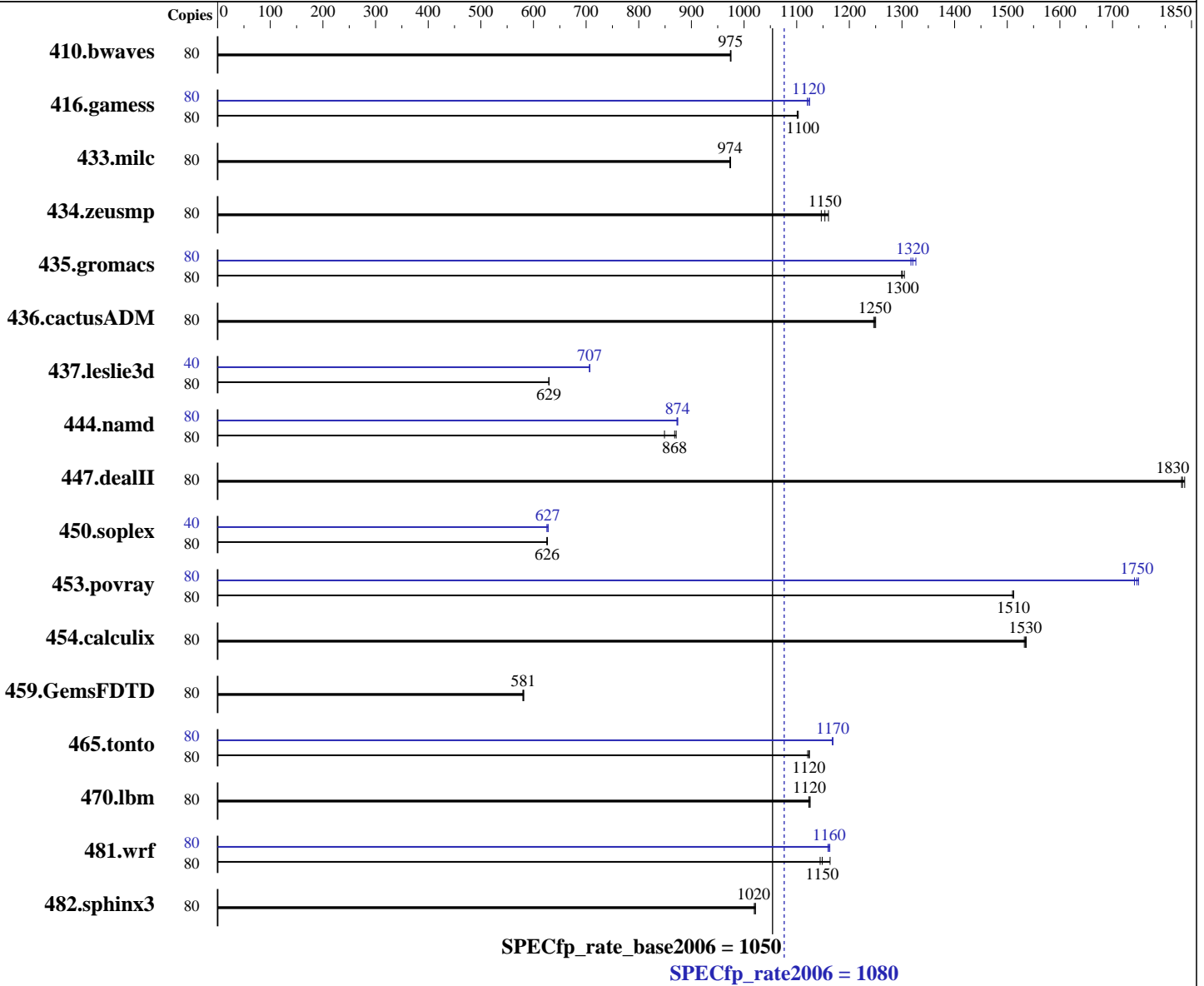
$SPECfp_rate_base2006 = $ 1050

CPU2006 license: 19

Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2015

Hardware Availability: Jun-2014

Software Availability: Jan-2015

Benchmark	Copies	Result
410.bwaves	80	975
416.gamess	80	1120
416.gamess	80	1100
433.milc	80	974
434.zeusmp	80	1150
435.gromacs	80	1320
435.gromacs	80	1300
436.cactusADM	80	1250
437.leslie3d	40	707
437.leslie3d	80	629
444.namd	80	874
444.namd	80	868
447.dealII	80	1830
450.soplex	40	627
450.soplex	80	626
453.povray	80	1750
453.povray	80	1510
454.calculix	80	1530
459.GemsFDTD	80	581
465.tonto	80	1170
465.tonto	80	1120
470.lbm	80	1120
481.wrf	80	1160
481.wrf	80	1150
482.sphinx3	80	1020

SPECfp_rate_base2006 = 1050

SPECfp_rate2006 = 1080

Hardware

CPU Name: Intel Xeon E7-4830 v2
CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable: 4 chips
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 6.5 (Santiago)
2.6.32-431.el6.x86_64
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: ext4

Continued on next page

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Page 1

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L3 Cache:	20 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x SATA, 500 GB, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	80	**_1115_**	**_975_**	1116	974	1115	975	80	**_1115_**	**_975_**	1116	974	1115	975
416.gamess	80	**_1422_**	**_1100_**	1420	1100	1423	1100	80	1393	1120	1399	1120	**_1395_**	**_1120_**
433.milc	80	**_754_**	**_974_**	755	973	754	974	80	**_754_**	**_974_**	755	973	754	974
434.zeusmp	80	627	1160	**_631_**	**_1150_**	635	1150	80	627	1160	**_631_**	**_1150_**	635	1150
435.gromacs	80	438	1300	**_439_**	**_1300_**	440	1300	80	431	1330	**_433_**	**_1320_**	434	1320
436.cactusADM	80	**_766_**	**_1250_**	767	1250	765	1250	80	**_766_**	**_1250_**	767	1250	765	1250
437.leslie3d	80	**_1195_**	**_629_**	1194	630	1195	629	40	**_532_**	**_707_**	532	707	532	706
444.namd	80	737	871	756	849	**_739_**	**_868_**	80	734	874	**_734_**	**_874_**	735	873
447.dealII	80	500	1830	498	1840	**_499_**	**_1830_**	80	500	1830	498	1840	**_499_**	**_1830_**
450.soplex	80	1065	627	1067	625	**_1066_**	**_626_**	40	**_532_**	**_627_**	531	628	533	625
453.povray	80	282	1510	281	1510	**_282_**	**_1510_**	80	243	1750	**_244_**	**_1750_**	244	1740
454.calculix	80	430	1540	**_430_**	**_1530_**	431	1530	80	430	1540	**_430_**	**_1530_**	431	1530
459.GemsFDTD	80	**_1462_**	**_581_**	1464	580	1459	582	80	**_1462_**	**_581_**	1464	580	1459	582
465.tonto	80	700	1120	**_701_**	**_1120_**	702	1120	80	674	1170	**_674_**	**_1170_**	674	1170
470.lbm	80	979	1120	977	1130	**_978_**	**_1120_**	80	979	1120	977	1130	**_978_**	**_1120_**
481.wrf	80	**_778_**	**_1150_**	768	1160	781	1140	80	771	1160	**_769_**	**_1160_**	768	1160
482.sphinx3	80	1526	1020	1530	1020	**_1527_**	**_1020_**	80	1526	1020	1530	1020	**_1527_**	**_1020_**

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"

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Test date: Mar-2015
Hardware Availability: Jun-2014
Software Availability: Jan-2015

Platform Notes

```
   BIOS configuration:
   Energy Performance = Performance
```

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 i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 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
 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
```

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SPECfp_rate2006 = 1080

SPECfp_rate_base2006 = 1050

CPU2006 license: 19	**Test date:** Mar-2015
Test sponsor: Fujitsu	**Hardware Availability:** Jun-2014
Tested by: Fujitsu	**Software Availability:** Jan-2015

Base Portability Flags (Continued)

```
  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:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

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

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

Peak Compiler Invocation

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

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
```

Continued on next page

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$SPECfp\_rate2006 =$ 1080

$SPECfp\_rate\_base2006 =$ 1050

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

Test date: Mar-2015
Hardware Availability: Jun-2014
Software Availability: Jan-2015

Peak Portability Flags (Continued)

```
    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
      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: basepeak = yes

       470.lbm: basepeak = yes

    482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
      444.namd: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX(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-
```

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$SPECfp\_rate2006 =$ 1080

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CPU2006 license: 19

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Peak Optimization Flags (Continued)

```
      434.zeusmp: basepeak = yes

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

   459.GemsFDTD: basepeak = yes

        465.tonto: -xAVX(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: -xAVX(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-prefetch -auto-ilp32

   436.cactusADM: basepeak = yes

     454.calculix: basepeak = yes

         481.wrf: -xAVX -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/Intel-ic14.0-official-linux64-revB.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revB.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml

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

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