SPEC® CFP2006 Result

Fujitsu

PRIMERGY RX4770 M1, Intel Xeon E7-8893 v2, 3.40 GHz

$SPECfp®_rate2006 = $ **1050**

$SPECfp_rate_base2006 = $ **1020**

CPU2006 license:	19	**Test date:**	Apr-2014
Test sponsor:	Fujitsu	**Hardware Availability:**	Jun-2014
Tested by:	Fujitsu	**Software Availability:**	Sep-2013

Copies

Benchmark	Copies	Result
410.bwaves	48	1170
416.gamess	48	946
416.gamess	48	929
433.milc	48	1180
433.milc	48	1170
434.zeusmp	48	1040
435.gromacs	48	1120
435.gromacs	48	1110
436.cactusADM	48	1070
437.leslie3d	24	823
437.leslie3d	48	654
444.namd	48	735
444.namd	48	733
447.dealII	48	1580
450.soplex	48	718
453.povray	48	1470
453.povray	48	1270
454.calculix	48	1350
459.GemsFDTD	48	540
465.tonto	48	1220
465.tonto	48	1160
470.lbm	48	1010
481.wrf	48	1290
481.wrf	48	1240
482.sphinx3	48	1190

SPECfp_rate_base2006 = 1020

SPECfp_rate2006 = 1050

Hardware

CPU Name:	Intel Xeon E7-8893 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	3400
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 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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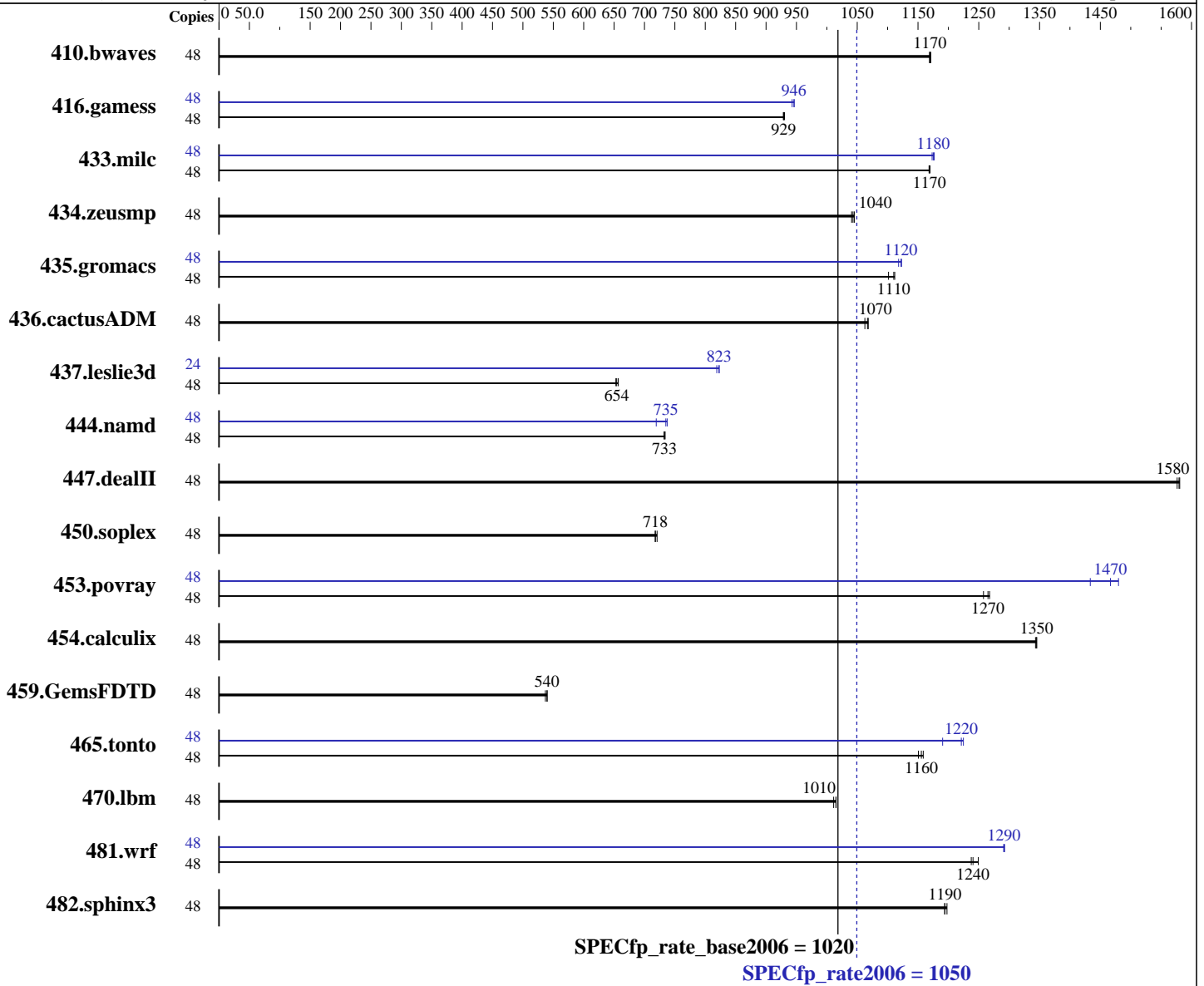
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L3 Cache:	37.5 MB I+D on chip per chip	System State:	Run level 5 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x SATA, 500 GB, 7200 RPM		
Other Hardware:	None		

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	558	1170	557	1170	**558**	**1170**	48	558	1170	557	1170	**558**	**1170**
416.gamess	48	1010	930	**1012**	**929**	1012	928	48	993	946	**994**	**946**	997	943
433.milc	48	377	1170	**377**	**1170**	377	1170	48	**375**	**1180**	375	1180	376	1170
434.zeusmp	48	**419**	**1040**	420	1040	418	1050	48	**419**	**1040**	420	1040	418	1050
435.gromacs	48	308	1110	311	1100	**309**	**1110**	48	305	1120	307	1120	**305**	**1120**
436.cactusADM	48	537	1070	540	1060	**538**	**1070**	48	537	1070	540	1060	**538**	**1070**
437.leslie3d	48	691	653	687	657	**690**	**654**	24	275	819	**274**	**823**	274	823
444.namd	48	**525**	**733**	526	732	524	734	48	535	719	**524**	**735**	522	737
447.dealII	48	**348**	**1580**	348	1580	347	1580	48	**348**	**1580**	348	1580	347	1580
450.soplex	48	558	718	**558**	**718**	555	721	48	558	718	**558**	**718**	555	721
453.povray	48	203	1260	201	1270	**202**	**1270**	48	**174**	**1470**	178	1430	173	1480
454.calculix	48	295	1340	294	1350	**294**	**1350**	48	295	1340	294	1350	**294**	**1350**
459.GemsFDTD	48	943	540	**944**	**540**	948	537	48	943	540	**944**	**540**	948	537
465.tonto	48	**409**	**1160**	408	1160	410	1150	48	397	1190	386	1220	**387**	**1220**
470.lbm	48	650	1020	**650**	**1010**	652	1010	48	650	1020	**650**	**1010**	652	1010
481.wrf	48	429	1250	433	1240	**432**	**1240**	48	**415**	**1290**	415	1290	415	1290
482.sphinx3	48	784	1190	**783**	**1190**	781	1200	48	784	1190	**783**	**1190**	781	1200

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: Apr-2014
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Software Availability: Sep-2013

Platform Notes

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

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/SPECcpu2006-MONITOR/libs/32:/SPECcpu2006-MONITOR/libs/64:/SPECcpu2006-MONITOR/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
    454.calculix: -DSPEC_CPU_LP64 -nofor_main
```

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Base Portability Flags (Continued)

```
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:
```
icpc   -m64
```

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

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

Peak Portability Flags

```
Same as Base Portability Flags
```

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CPU2006 license: 19
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Test date: Apr-2014
Hardware Availability: Jun-2014
Software Availability: Sep-2013

Peak Optimization Flags

C benchmarks:

> 433.milc: -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) -auto-ilp32

> 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: basepeak = yes

> 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-

> 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

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Peak Optimization Flags (Continued)

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.20131009.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.20131009.xml`

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 23:33:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 16 June 2014.