SPEC® CFP2006 Result
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Fujitsu

PRIMERGY RX500 S7, Intel Xeon E5-4650, 2.70 GHz

$SPECfp^{®}2006 =$ 79.5

$SPECfp\_base2006 =$ 75.6

CPU2006 license: 19	**Test date:** Jul-2012
Test sponsor: Fujitsu	**Hardware Availability:** Jul-2012
Tested by: Fujitsu	**Software Availability:** Feb-2012

Chart data (blue = SPECfp2006, black = base):

- **410.bwaves**: 551 / 542
- **416.gamess**: 34.0 / 28.6
- **433.milc**: 60.4 / 60.0
- **434.zeusmp**: 119
- **435.gromacs**: 34.5
- **436.cactusADM**: 282
- **437.leslie3d**: 110
- **444.namd**: 22.9 / 22.5
- **447.dealII**: 54.2 / 54.1
- **450.soplex**: 41.5
- **453.povray**: 49.6 / 42.5
- **454.calculix**: 41.0 / 34.4
- **459.GemsFDTD**: 146 / 125
- **465.tonto**: 41.9 / 35.6
- **470.lbm**: 700
- **481.wrf**: 49.4
- **482.sphinx3**: 63.7

SPECfp_base2006 = 75.6

SPECfp2006 = 79.5

Hardware

CPU Name:	Intel Xeon E5-4650
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2700
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip
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

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:	Yes
File System:	ext4

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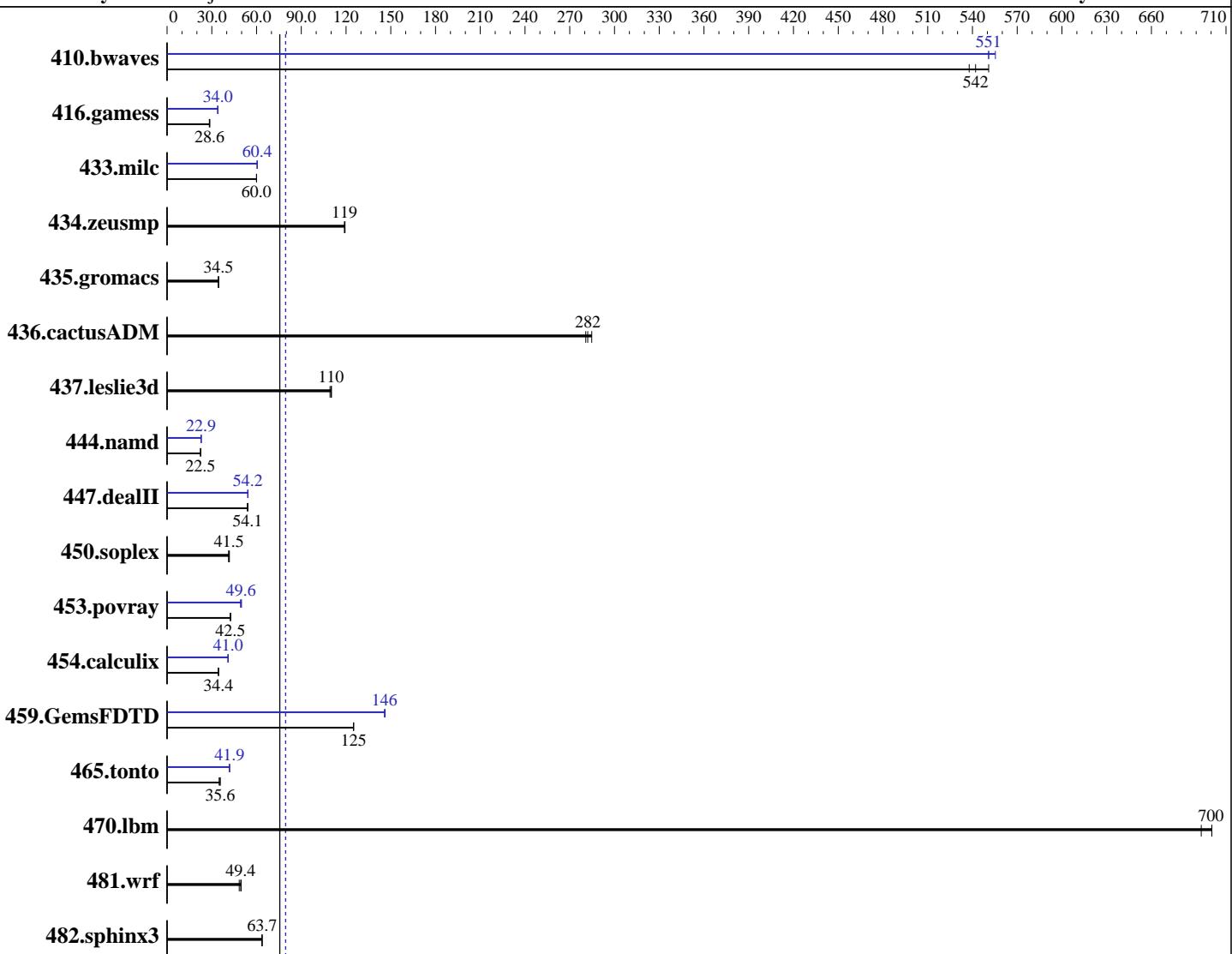|	
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L3 Cache:	20 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	512 GB (32 x 16 GB 2Rx4 PC3L-12800R-11, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x SATA, 500 GB, 7200 RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	25.3	538	**25.1**	**542**	24.7	551	24.5	555	24.7	551	**24.7**	**551**
416.gamess	692	28.3	**685**	**28.6**	685	28.6	576	34.0	576	34.0	**576**	**34.0**
433.milc	153	60.0	**153**	**60.0**	153	60.0	152	60.5	**152**	**60.4**	152	60.4
434.zeusmp	**76.5**	**119**	76.5	119	76.3	119	**76.5**	**119**	76.5	119	76.3	119
435.gromacs	207	34.4	**207**	**34.5**	207	34.5	207	34.4	**207**	**34.5**	207	34.5
436.cactusADM	42.0	285	42.6	281	**42.4**	**282**	42.0	285	42.6	281	**42.4**	**282**
437.leslie3d	86.1	109	85.3	110	**85.5**	**110**	86.1	109	85.3	110	**85.5**	**110**
444.namd	357	22.5	**357**	**22.5**	357	22.5	**351**	**22.9**	351	22.9	350	22.9
447.dealII	**212**	**54.1**	213	53.8	211	54.2	211	54.2	**211**	**54.2**	211	54.1
450.soplex	199	41.8	**201**	**41.5**	202	41.3	199	41.8	**201**	**41.5**	202	41.3
453.povray	125	42.4	125	42.7	**125**	**42.5**	**107**	**49.6**	108	49.2	107	49.9
454.calculix	239	34.5	240	34.4	**239**	**34.4**	**201**	**41.0**	202	40.8	201	41.0
459.GemsFDTD	84.8	125	84.8	125	**84.8**	**125**	72.5	146	**72.7**	**146**	72.7	146
465.tonto	**277**	**35.6**	277	35.6	282	34.9	**235**	**41.9**	236	41.8	234	42.0
470.lbm	19.8	693	19.6	701	**19.6**	**700**	19.8	693	19.6	701	**19.6**	**700**
481.wrf	**226**	**49.4**	225	49.7	231	48.4	**226**	**49.4**	225	49.7	231	48.4
482.sphinx3	**306**	**63.7**	306	63.8	306	63.7	**306**	**63.7**	306	63.8	306	63.7

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"
Transparent Huge Pages disabled with:
echo never  > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Platform Notes

```
BIOS configuration:
Intel HT Technology = Disable
Frequency Floor Override = Enable
```

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General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64"
OMP_NUM_THREADS = "32"

 Binaries compiled on a system with 1x E3-1270v2 CPU + 32 GB
 memory using RHEL6.2
 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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Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

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

Benchmarks using both Fortran and C:
```
-xAVX -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: -xAVX(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: basepeak = yes
```

Continued on next page

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Peak Optimization Flags (Continued)

C++ benchmarks:

    444.namd: `-xAVX(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: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`
        `-ansi-alias`

    450.soplex: `basepeak = yes`

    453.povray: `-xAVX(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: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel`
        `-static`

    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- -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: `-xAVX(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: `-xAVX -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/Fujitsu-Platform.20120320.html

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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

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

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