SPEC® CFP2006 Result
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Fujitsu

PRIMERGY RX200 S6, Intel Xeon E5649, 2.53 GHz

$SPECfp^{®}2006 =$ 53.0

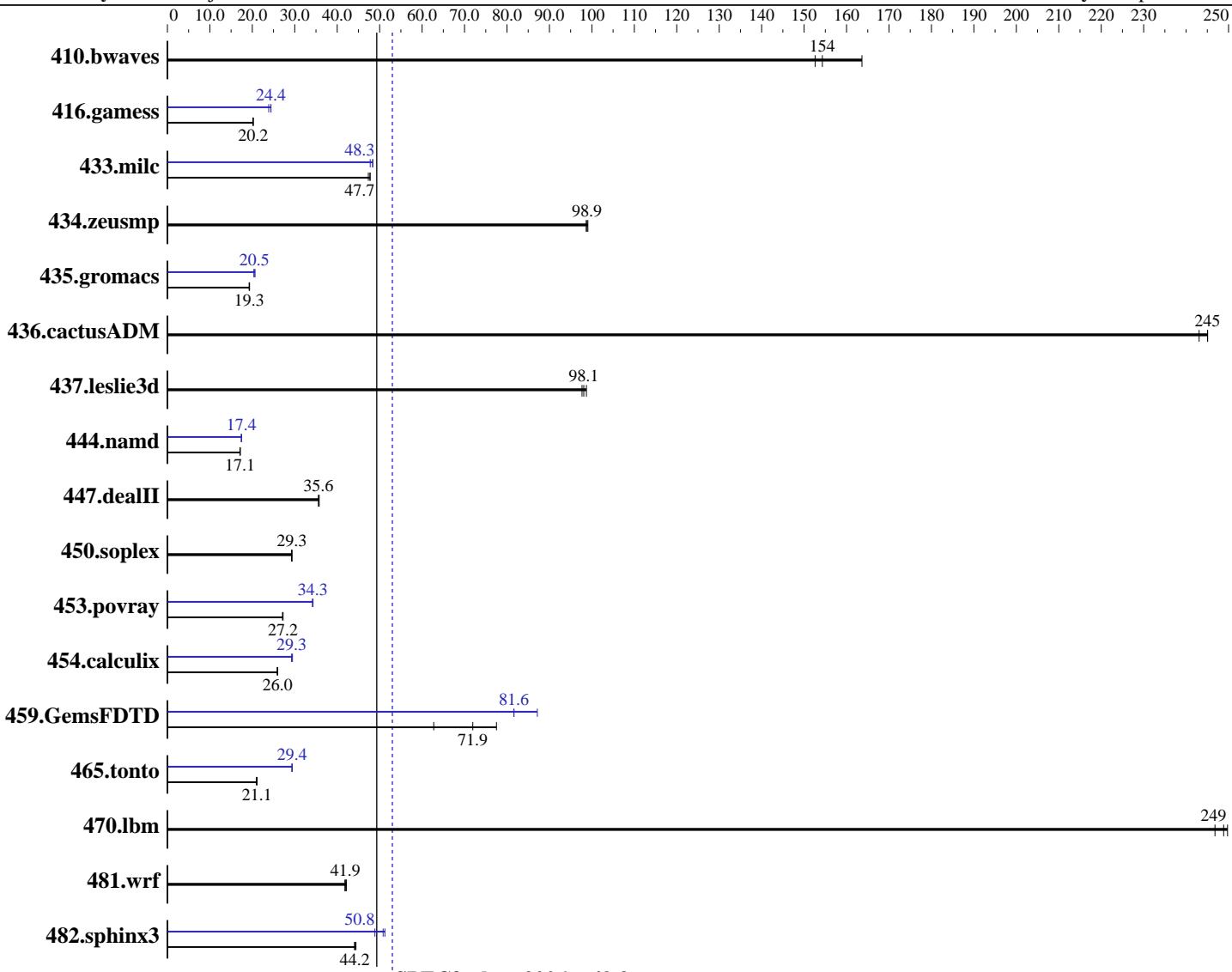$SPECfp\_base2006 =$ 49.3

CPU2006 license: 19	**Test date:** Mar-2011
Test sponsor: Fujitsu	**Hardware Availability:** Feb-2011
Tested by: Fujitsu	**Software Availability:** Apr-2011

410.bwaves 154
416.gamess 24.4 / 20.2
433.milc 48.3 / 47.7
434.zeusmp 98.9
435.gromacs 20.5 / 19.3
436.cactusADM 245
437.leslie3d 98.1
444.namd 17.4 / 17.1
447.dealII 35.6
450.soplex 29.3
453.povray 34.3 / 27.2
454.calculix 29.3 / 26.0
459.GemsFDTD 81.6 / 71.9
465.tonto 29.4 / 21.1
470.lbm 249
481.wrf 41.9
482.sphinx3 50.8 / 44.2

SPECfp_base2006 = 49.3

SPECfp2006 = 53.0

Hardware

CPU Name:	Intel Xeon E5649
CPU Characteristics:	Intel Turbo Boost Technology up to 2.93 GHz
CPU MHz:	2533
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip
CPU(s) orderable:	1,2 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:	SUSE Linux Enterprise Server 11 (x86_64) with SP1, Kernel 2.6.32.12-0.7-default
Compiler:	Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0 Update 3
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache:	12 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	None
Memory:	48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)		
Disk Subsystem:	1 x SAS, 300 GB, 10000 RPM		
Other Hardware:	--		

Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	**88.1**	**154**	83.1	164	89.1	153	**88.1**	**154**	83.1	164	89.1	153
416.gamess	**969**	**20.2**	971	20.2	969	20.2	803	24.4	820	23.9	**803**	**24.4**
433.milc	**192**	**47.7**	192	47.7	194	47.3	190	48.4	**190**	**48.3**	192	47.8
434.zeusmp	92.2	98.6	91.9	99.1	**92.0**	**98.9**	92.2	98.6	91.9	99.1	**92.0**	**98.9**
435.gromacs	369	19.4	**370**	**19.3**	371	19.3	350	20.4	**349**	**20.5**	346	20.7
436.cactusADM	48.8	245	**48.8**	**245**	49.2	243	48.8	245	**48.8**	**245**	49.2	243
437.leslie3d	96.2	97.7	95.2	98.7	**95.8**	**98.1**	96.2	97.7	95.2	98.7	**95.8**	**98.1**
444.namd	**468**	**17.1**	468	17.2	469	17.1	**460**	**17.4**	460	17.4	460	17.5
447.dealII	**321**	**35.6**	321	35.6	320	35.8	**321**	**35.6**	321	35.6	320	35.8
450.soplex	285	29.3	**285**	**29.3**	284	29.4	285	29.3	**285**	**29.3**	284	29.4
453.povray	196	27.1	195	27.2	**195**	**27.2**	156	34.2	**155**	**34.3**	155	34.3
454.calculix	318	26.0	**318**	**26.0**	319	25.8	280	29.5	282	29.3	**282**	**29.3**
459.GemsFDTD	169	62.7	137	77.5	**147**	**71.9**	130	81.6	122	87.1	**130**	**81.6**
465.tonto	470	20.9	**466**	**21.1**	466	21.1	**335**	**29.4**	334	29.4	336	29.3
470.lbm	**55.2**	**249**	55.7	247	55.0	250	**55.2**	**249**	55.7	247	55.0	250
481.wrf	265	42.2	267	41.8	**266**	**41.9**	265	42.2	267	41.8	**266**	**41.9**
482.sphinx3	442	44.1	439	44.4	**441**	**44.2**	380	51.2	**384**	**50.8**	399	48.9

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
BIOS configuration:
Data Reuse Optimization = Disable
Intel HT Technology = Disable
```

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General Notes

```
OMP_NUM_THREADS set to number of cores
For information about Fujitsu please visit: http://www.fujitsu.com
Binaries were compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5
```

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 -parallel -opt-prefetch
    -ansi-alias
```

C++ benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

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Base Optimization Flags (Continued)

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

Benchmarks using both Fortran and C:
```
-xSSE4.2 -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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
             -parallel
```

C++ benchmarks:

```
   444.namd: -xSSE4.2(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
```

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Peak Optimization Flags (Continued)

```
       447.dealII: basepeak = yes

       450.soplex: basepeak = yes

       453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                   -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
                   -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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: 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
                   -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

       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) -inline-calloc
                   -opt-malloc-options=3 -auto -unroll4
                   -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

      435.gromacs: -xSSE4.2(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

   436.cactusADM: basepeak = yes

      454.calculix: -xSSE4.2 -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-ic12.0-linux64-revB.20110316.html
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20110316.xml
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.xml

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