SPEC® CFP2006 Result
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Fujitsu

PRIMERGY TX300 S6, Intel Xeon X5647, 2.93 GHz

$SPECfp^{®}2006 =$ 54.6

$SPECfp\_base2006 =$ 50.8

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

410.bwaves 157
416.gamess 26.6 / 22.7
433.milc 49.8 / 49.2
434.zeusmp 90.6
435.gromacs 22.4 / 21.0
436.cactusADM 200
437.leslie3d 100
444.namd 19.0 / 18.7
447.dealII 38.5
450.soplex 30.7
453.povray 37.6 / 29.8
454.calculix 31.9 / 28.4
459.GemsFDTD 77.0 / 64.5
465.tonto 32.0 / 23.9
470.lbm 234
481.wrf 46.2
482.sphinx3 56.5 / 48.8

SPECfp_base2006 = 50.8

SPECfp2006 = 54.6

Hardware

CPU Name:	Intel Xeon X5647
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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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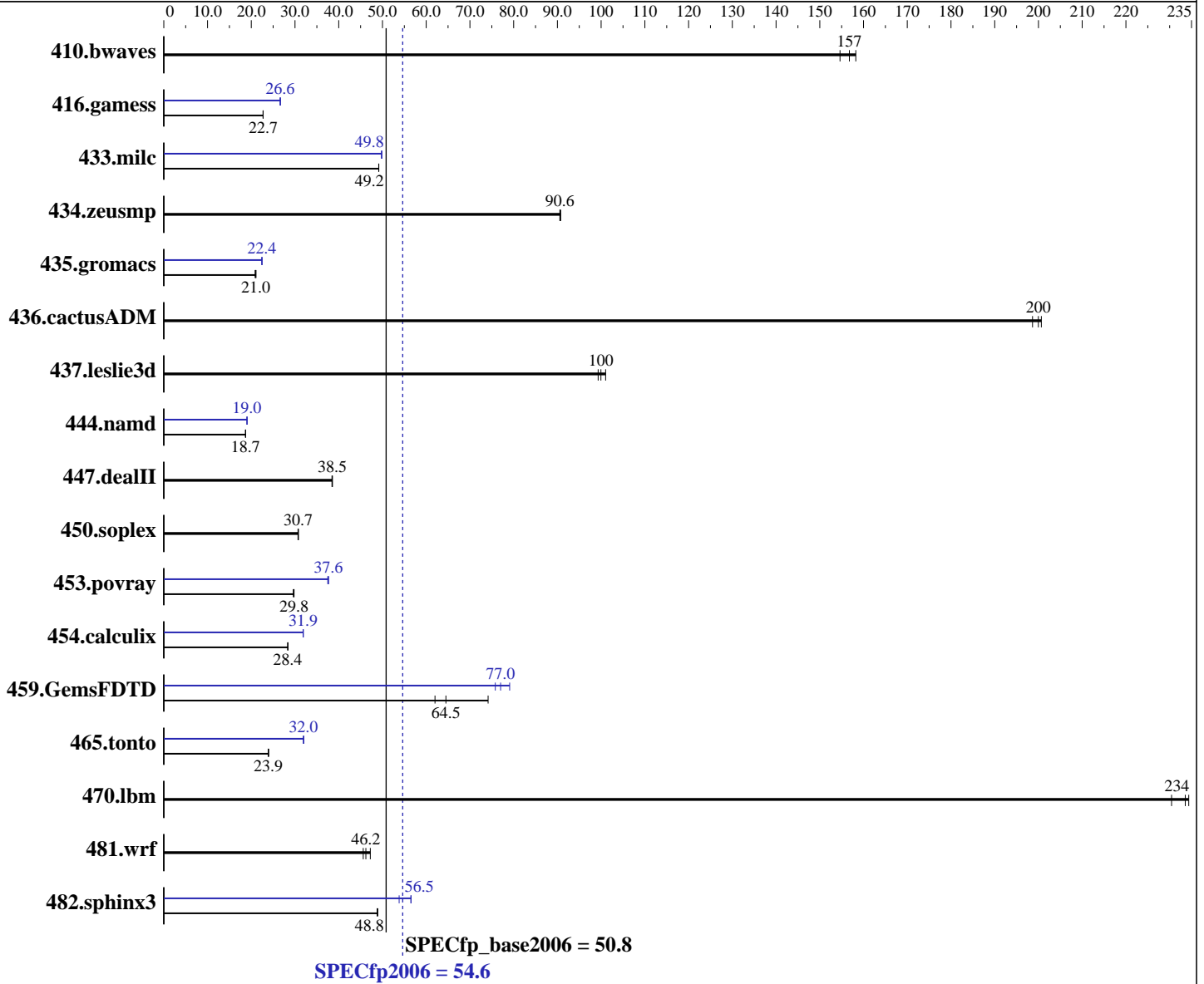| SPECfp2006 =	54.6
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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	1 x SAS, 300 GB, 10000 RPM
Other Hardware:	--

Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	87.9	155	**86.7**	**157**	85.9	158	87.9	155	**86.7**	**157**	85.9	158
416.gamess	863	22.7	**862**	**22.7**	862	22.7	736	26.6	**735**	**26.6**	734	26.7
433.milc	187	49.2	**187**	**49.2**	187	49.1	184	49.8	184	49.8	**184**	**49.8**
434.zeusmp	100	90.8	**100**	**90.6**	100	90.6	100	90.8	**100**	**90.6**	100	90.6
435.gromacs	**339**	**21.0**	342	20.9	339	21.1	318	22.5	318	22.4	**318**	**22.4**
436.cactusADM	60.2	199	59.6	201	**59.8**	**200**	60.2	199	59.6	201	**59.8**	**200**
437.leslie3d	94.6	99.3	93.0	101	**94.0**	**100**	94.6	99.3	93.0	101	**94.0**	**100**
444.namd	429	18.7	**429**	**18.7**	429	18.7	422	19.0	421	19.0	**421**	**19.0**
447.dealII	297	38.5	298	38.5	**297**	**38.5**	297	38.5	298	38.5	**297**	**38.5**
450.soplex	**271**	**30.7**	271	30.8	272	30.7	**271**	**30.7**	271	30.8	272	30.7
453.povray	179	29.8	180	29.6	**179**	**29.8**	141	37.7	142	37.5	**141**	**37.6**
454.calculix	291	28.4	291	28.4	**291**	**28.4**	259	31.9	**259**	**31.9**	259	31.9
459.GemsFDTD	171	62.0	**164**	**64.5**	143	74.2	140	75.8	134	79.1	**138**	**77.0**
465.tonto	412	23.9	410	24.0	**412**	**23.9**	308	**32.0**	308	32.0	308	31.9
470.lbm	58.6	234	59.6	230	**58.8**	**234**	58.6	234	59.6	230	**58.8**	**234**
481.wrf	245	45.6	**242**	**46.2**	237	47.2	245	45.6	**242**	**46.2**	237	47.2
482.sphinx3	400	48.8	398	48.9	**399**	**48.8**	345	56.5	362	53.8	**345**	**56.5**

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
This result was measured on the PRIMERGY TX300 S6. The PRIMERGY TX300 S6
and the PRIMERGY RX300 S6 are electronically equivalent.
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

Submitted_by: "Klassen, Peter" <peter.klassen@ts.fujitsu.com>
Submitted: Mon Mar 28 12:08:25 EDT 2011
Submission: cpu2006-20110328-15228.sub
```

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:
```
-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
```

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
```

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Peak Optimization Flags (Continued)

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`

> 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`

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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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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 19:48:41 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 20 April 2011.