SPEC® CFP2006 Result
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Fujitsu

PRIMERGY TX120 S3, Intel Celeron G530, 2.40 GHz

$SPECfp^{®}2006 =$ 35.3
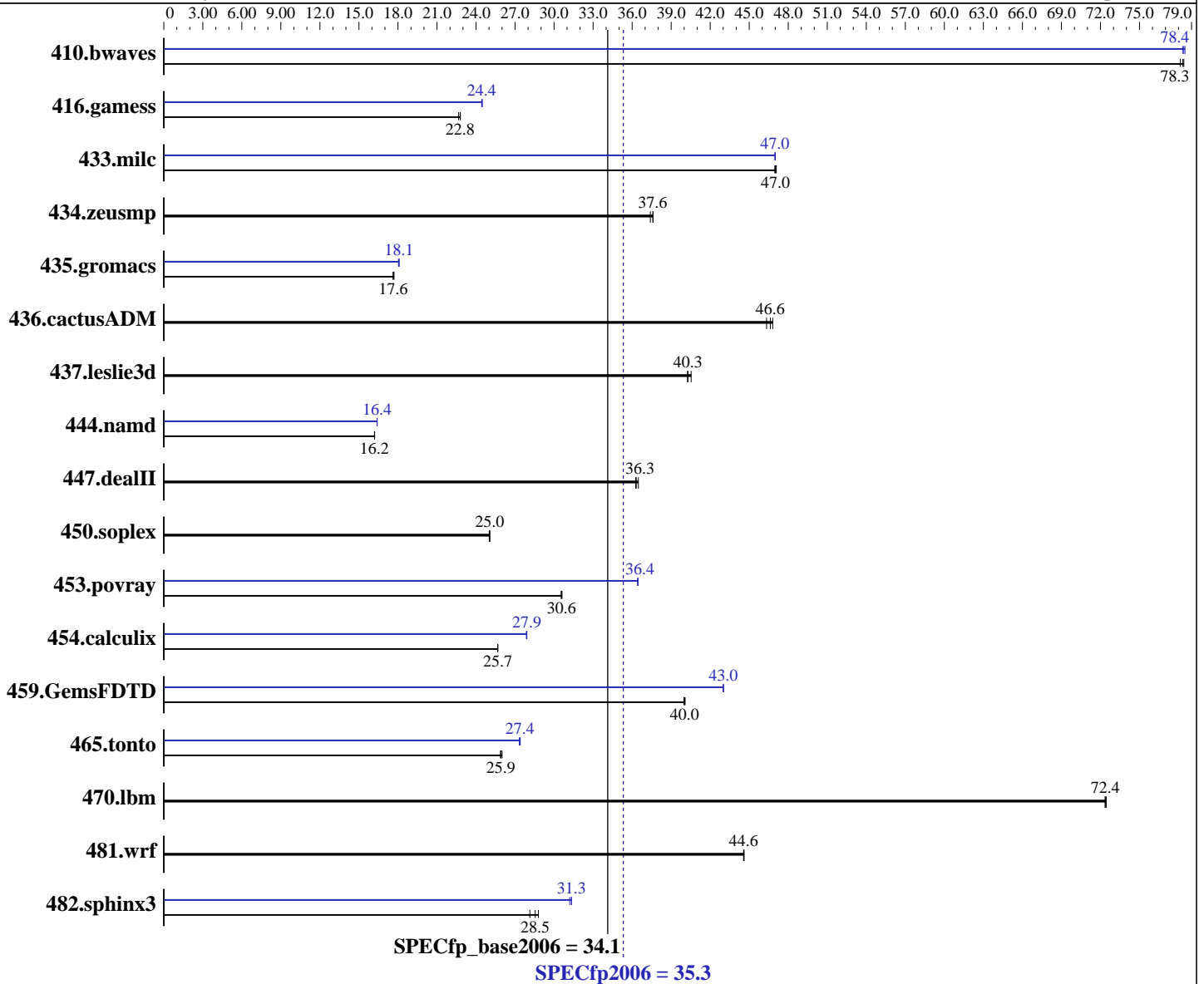
$SPECfp\_base2006 =$ 34.1

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

Test date: Sep-2011
Hardware Availability: Sep-2011
Software Availability: Apr-2011

Benchmark	Peak	Base
410.bwaves	78.4	78.3
416.gamess	24.4	22.8
433.milc	47.0	47.0
434.zeusmp		37.6
435.gromacs	18.1	17.6
436.cactusADM		46.6
437.leslie3d		40.3
444.namd	16.4	16.2
447.dealII		36.3
450.soplex		25.0
453.povray	36.4	30.6
454.calculix	27.9	25.7
459.GemsFDTD	43.0	40.0
465.tonto	27.4	25.9
470.lbm		72.4
481.wrf		44.6
482.sphinx3	31.3	28.5

SPECfp_base2006 = 34.1
SPECfp2006 = 35.3

Hardware

CPU Name: Intel Celeron G530
CPU Characteristics:
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
CPU(s) orderable: 1 chip
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) 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

Continued on next page

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L3 Cache:	2 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	None
Memory:	8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC, running at 1067 MHz and CL7)		
Disk Subsystem:	1 x SATA, 300 GB, 7200 RPM		
Other Hardware:	--		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	174	78.1	173	78.4	**174**	**78.3**	**173**	**78.4**	174	78.3	173	78.5
416.gamess	864	22.7	859	22.8	**859**	**22.8**	800	24.5	**801**	**24.4**	801	24.4
433.milc	195	47.0	**195**	**47.0**	195	47.1	**195**	**47.0**	195	47.0	195	47.0
434.zeusmp	243	37.4	**242**	**37.6**	242	37.6	243	37.4	**242**	**37.6**	242	37.6
435.gromacs	**405**	**17.6**	405	17.6	403	17.7	395	18.1	**395**	**18.1**	396	18.0
436.cactusADM	**256**	**46.6**	258	46.3	255	46.8	**256**	**46.6**	258	46.3	255	46.8
437.leslie3d	233	40.3	**233**	**40.3**	232	40.5	233	40.3	**233**	**40.3**	232	40.5
444.namd	**495**	**16.2**	495	16.2	495	16.2	489	16.4	**489**	**16.4**	489	16.4
447.dealII	314	36.5	**315**	**36.3**	315	36.3	314	36.5	**315**	**36.3**	315	36.3
450.soplex	**333**	**25.0**	333	25.1	333	25.0	**333**	**25.0**	333	25.1	333	25.0
453.povray	174	30.5	174	30.6	**174**	**30.6**	146	36.4	**146**	**36.4**	146	36.5
454.calculix	321	25.7	321	25.7	**321**	**25.7**	296	27.9	**296**	**27.9**	296	27.9
459.GemsFDTD	**265**	**40.0**	265	40.1	265	40.0	**247**	**43.0**	247	43.0	247	43.0
465.tonto	380	25.9	378	26.0	**380**	**25.9**	360	27.3	359	27.4	**360**	**27.4**
470.lbm	190	72.4	**190**	**72.4**	190	72.4	190	72.4	**190**	**72.4**	190	72.4
481.wrf	250	44.6	**251**	**44.6**	251	44.6	250	44.6	**251**	**44.6**	251	44.6
482.sphinx3	693	28.1	**683**	**28.5**	677	28.8	625	31.2	**622**	**31.3**	622	31.3

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
```

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
```

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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
```

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
```

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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

> 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:

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Peak Optimization Flags (Continued)

```
410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -parallel
            -static

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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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 21:38:57 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 27 September 2011.