SPEC® CFP2006 Result
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Fujitsu Siemens Computers

$SPECfp^{®}\_rate2006 =$ 156

PRIMERGY RX600 S4, Intel Xeon X7460, 2.66 GHz
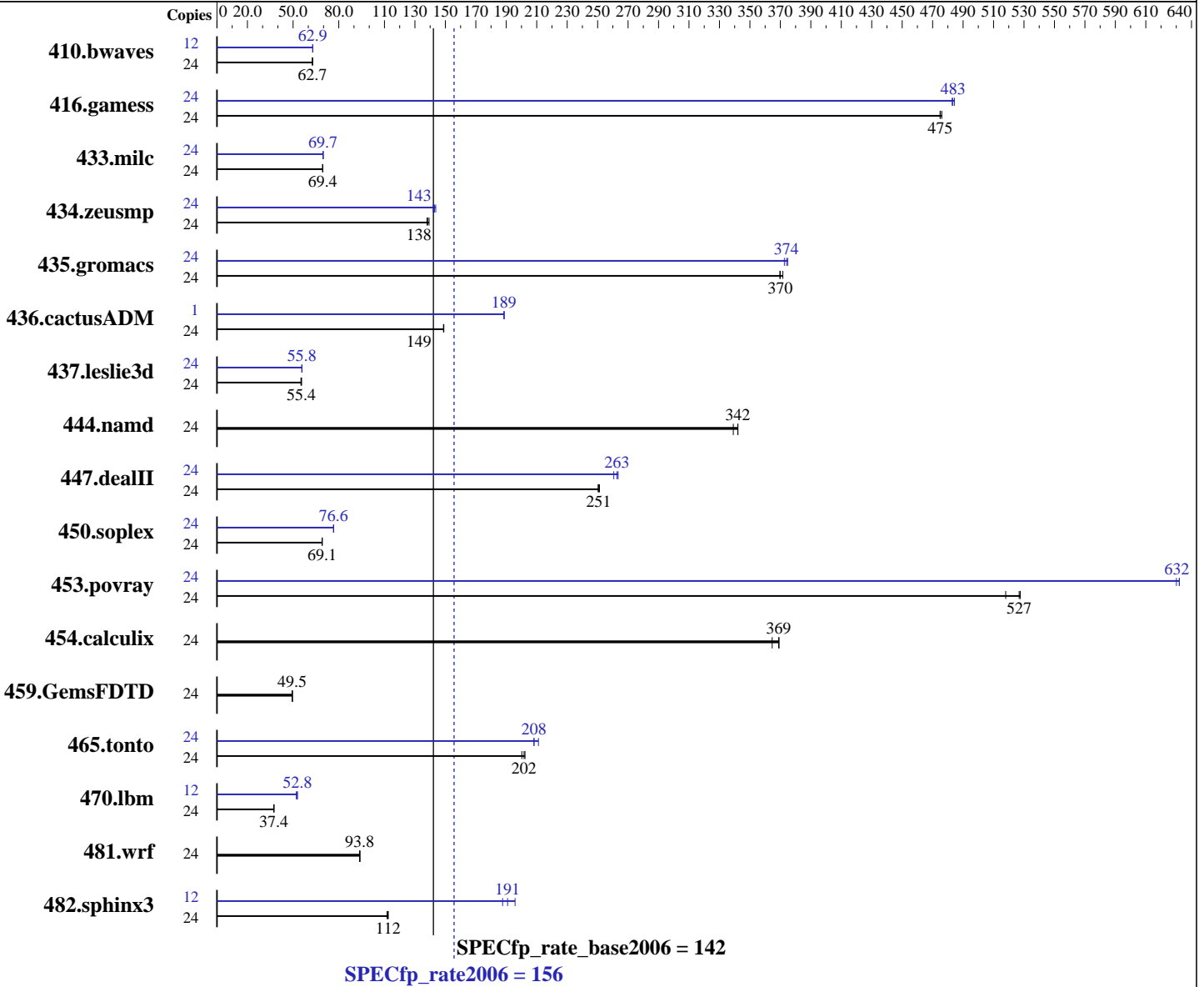
$SPECfp\_rate\_base2006 =$ 142

CPU2006 license: 22

Test sponsor: Fujitsu Siemens Computers

Tested by: Fujitsu Siemens Computers

Test date: Aug-2008

Hardware Availability: Sep-2008

Software Availability: Nov-2008

SPECfp_rate_base2006 = 142

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Hardware

CPU Name: Intel Xeon X7460
CPU Characteristics: 1066 MHz system bus
CPU MHz: 2667
FPU: Integrated
CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip
CPU(s) orderable: 1,2,4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 9 MB I+D on chip per chip, 3 MB shared / 2 cores

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp
Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel: Yes
File System: ext3
System State: Multi-User Run Level 3
Base Pointers: 64-bit

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L3 Cache: 16 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (16x4 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x SAS, 73 GB, 15000 rpm
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	5202	62.7	5198	62.8	**5198**	**62.7**	12	2592	62.9	**2592**	**62.9**	2592	62.9
416.gamess	24	987	476	990	475	**989**	**475**	24	973	483	**972**	**483**	970	484
433.milc	24	3174	69.4	3171	69.5	**3172**	**69.4**	24	3160	69.7	**3159**	**69.7**	3159	69.7
434.zeusmp	24	1583	138	1568	139	**1579**	**138**	24	**1529**	**143**	1537	142	1520	144
435.gromacs	24	461	372	**463**	**370**	464	370	24	460	373	457	375	**458**	**374**
436.cactusADM	24	1925	149	1927	149	**1927**	**149**	1	63.4	189	**63.4**	**189**	63.4	189
437.leslie3d	24	4090	55.2	**4072**	**55.4**	4061	55.5	24	4045	55.8	**4044**	**55.8**	4042	55.8
444.namd	24	**563**	**342**	568	339	563	342	24	**563**	**342**	568	339	563	342
447.dealII	24	1097	250	**1096**	**251**	1093	251	24	1042	263	**1045**	**263**	1054	261
450.soplex	24	2900	69.0	**2899**	**69.1**	2893	69.2	24	2614	76.6	2613	76.6	**2613**	**76.6**
453.povray	24	**242**	**527**	242	528	246	518	24	202	632	**202**	**632**	203	630
454.calculix	24	**537**	**369**	543	365	536	369	24	**537**	**369**	543	365	536	369
459.GemsFDTD	24	5148	49.5	5140	49.5	**5147**	**49.5**	24	5148	49.5	5140	49.5	**5147**	**49.5**
465.tonto	24	1180	200	1167	202	**1171**	**202**	24	1134	208	1119	211	**1134**	**208**
470.lbm	24	8835	37.3	**8812**	**37.4**	8804	37.5	12	3122	52.8	3164	52.1	**3124**	**52.8**
481.wrf	24	2861	93.7	2854	93.9	**2859**	**93.8**	24	2861	93.7	2854	93.9	**2859**	**93.8**
482.sphinx3	24	**4163**	**112**	4188	112	4160	112	12	1195	196	**1225**	**191**	1247	188

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

Compiler Invocation Notes

```
All binaries were built with 64-bit mode except:
437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3
in peak were built with 32-bit mode.
```

Submit Notes

```
The config file option 'submit' was used.
For peak modules using 1/2 the number of available cores, each
copy was assigned to a single L2 cache using mysubmit.pl script.
See the flags description file for mysubmit.pl details.
```

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CPU2006 license: 22	**Test date:** Aug-2008
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Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores (default)
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
```

Platform Notes

```
BIOS configuration:
High Bandwidth option = Enable
```

General Notes

```
taskset has been used to bind processes to cores except
for 436.cactusADM peak

For information about Fujitsu Siemens Computers please see:
http://www.fujitsu-siemens.com
```

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

Fortran benchmarks:
```
ifort
```

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

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
```

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Base Portability Flags (Continued)

```
    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:
```
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

C++ benchmarks:
```
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Fortran benchmarks:
```
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
    /opt/intel/Compiler/11.0/042/bin/ia32/icc
    -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
    -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```
```
       433.milc: icc
```

C++ benchmarks (except as noted below):
```
    icpc
```
```
     450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
              -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
              -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

Fortran benchmarks (except as noted below):
```
    ifort
```
```
    437.leslie3d: /opt/intel/Compiler/11.0/042/bin/ia32/ifort
              -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
              -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

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

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Software Availability: Nov-2008

Peak 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
         444.namd: -DSPEC_CPU_LP64
        447.dealII: -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
          481.wrf: -DSPEC_CPU_LP64  -DSPEC_CPU_CASE_FLAG  -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
         433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                   -no-prec-div -static -fno-alias

          470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                   -no-prec-div -static -unroll2 -scalar-rep- -opt-prefetch
                   -opt-malloc-options=3

       482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
```

C++ benchmarks:

```
         444.namd: basepeak = yes

        447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                   -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

        450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                   -no-prec-div -static -opt-malloc-options=3

        453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                   -no-prec-div -static -unroll4 -ansi-alias
```

Fortran benchmarks:

```
       410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

       416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                   -no-prec-div -static -unroll2 -Ob0 -ansi-alias
                   -scalar-rep-
```

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Peak Optimization Flags (Continued)

434.zeusmp: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static`

437.leslie3d: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -opt-malloc-options=3 -opt-prefetch`

459.GemsFDTD: `basepeak = yes`

465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -unroll4 -auto`

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -opt-prefetch -auto-ilp32`

436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -unroll2 -opt-prefetch -parallel`
`-auto-ilp32`

454.calculix: `basepeak = yes`

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-ic11.0-fp-linux64-revA.20090713.04.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090714.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.04.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090714.xml

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

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