SPEC® CFP2006 Result
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Fujitsu

CELSIUS C620 (Intel Xeon E3-1280 v2)

$SPECfp^{®}2006 =$ 72.5
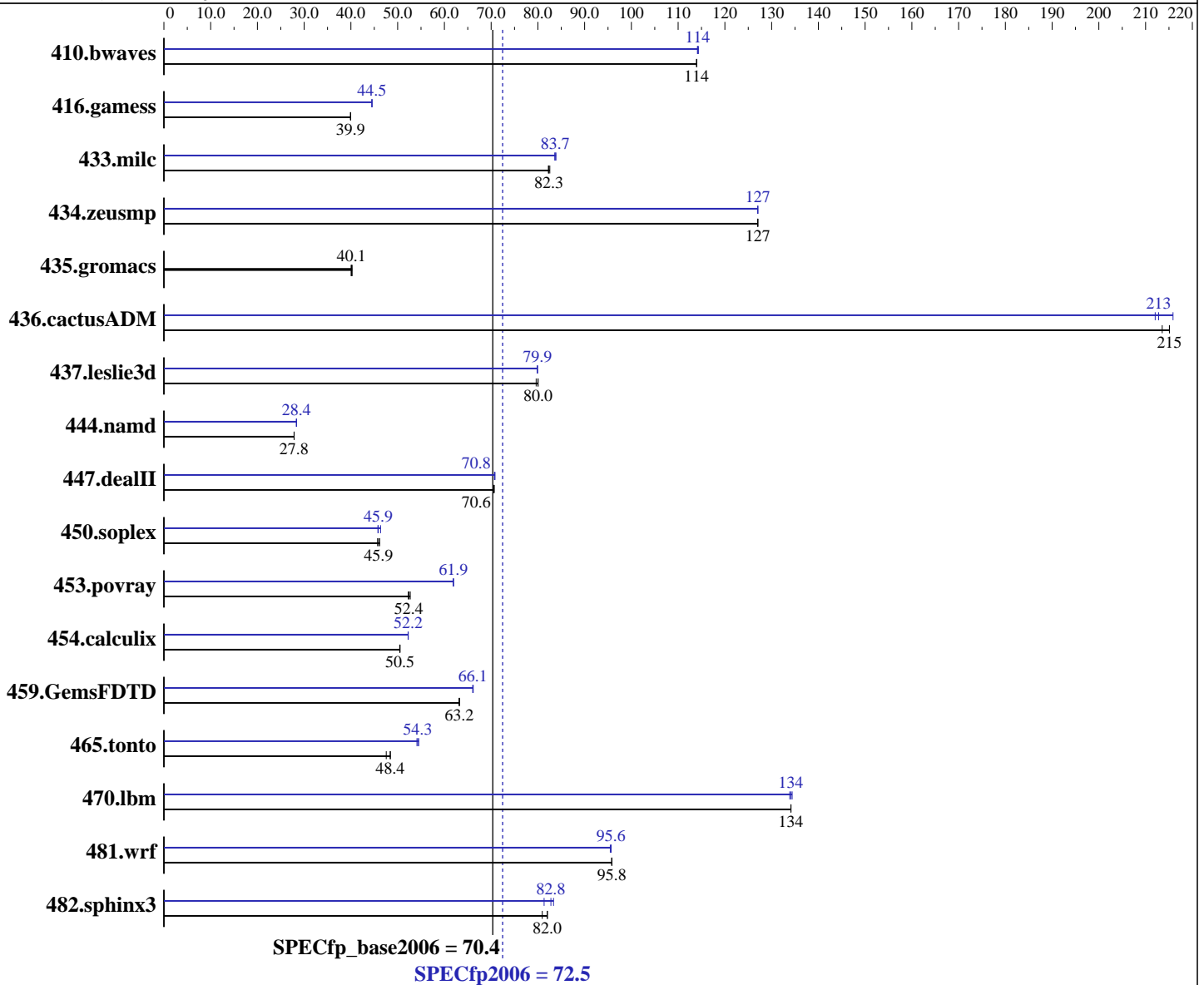
$SPECfp\_base2006 =$ 70.4

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

Test date: Aug-2012
Hardware Availability: Jul-2012
Software Availability: Dec-2011

Benchmark	Peak	Base
410.bwaves	114	114
416.gamess	44.5	39.9
433.milc	83.7	82.3
434.zeusmp	127	127
435.gromacs		40.1
436.cactusADM	213	215
437.leslie3d	79.9	80.0
444.namd	28.4	27.8
447.dealII	70.8	70.6
450.soplex	45.9	45.9
453.povray	61.9	52.4
454.calculix	52.2	50.5
459.GemsFDTD	66.1	63.2
465.tonto	54.3	48.4
470.lbm	134	134
481.wrf	95.6	95.8
482.sphinx3	82.8	82.0

SPECfp_base2006 = 70.4
SPECfp2006 = 72.5

Hardware

CPU Name:	Intel Xeon E3-1280 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3600
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 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:	Red Hat Enterprise Linux Server release 6.2, 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.3.293 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Run level 3 (multi - user)

Continued on next page

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L3 Cache:	8 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	8 GB (2 x 4 GB 2Rx8 PC3-12800U-11, non-ECC)	Other Software:	None
Disk Subsystem:	1 x SATA III, 500 GB, 7200 rpm		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	119	114	**119**	**114**	119	114	119	114	**119**	**114**	119	114
416.gamess	490	40.0	**490**	**39.9**	491	39.9	440	44.5	440	44.5	**440**	**44.5**
433.milc	111	82.5	112	82.2	**111**	**82.3**	110	83.6	109	83.9	**110**	**83.7**
434.zeusmp	71.6	127	**71.6**	**127**	71.6	127	71.6	127	**71.6**	**127**	71.6	127
435.gromacs	**178**	**40.1**	178	40.0	177	40.3	**178**	**40.1**	178	40.0	177	40.3
436.cactusADM	56.0	214	**55.6**	**215**	55.6	215	**56.2**	**213**	56.4	212	55.4	216
437.leslie3d	**117**	**80.0**	117	80.0	118	79.6	118	79.9	**118**	**79.9**	118	79.9
444.namd	**288**	**27.8**	288	27.9	288	27.8	**283**	**28.4**	283	28.4	283	28.4
447.dealII	162	70.6	162	70.6	**162**	**70.6**	162	70.7	**162**	**70.8**	162	70.8
450.soplex	**182**	**45.9**	181	46.2	182	45.7	180	46.4	182	45.8	**182**	**45.9**
453.povray	101	52.7	102	52.3	**102**	**52.4**	**85.9**	**61.9**	85.9	61.9	85.9	61.9
454.calculix	164	50.4	163	50.5	**163**	**50.5**	158	52.3	**158**	**52.2**	158	52.2
459.GemsFDTD	**168**	**63.2**	168	63.2	168	63.1	160	66.2	161	66.1	**161**	**66.1**
465.tonto	203	48.4	207	47.6	**203**	**48.4**	181	54.5	**181**	**54.3**	182	54.1
470.lbm	**102**	**134**	102	134	102	134	103	134	**102**	**134**	102	134
481.wrf	**117**	**95.8**	117	95.8	117	95.8	**117**	**95.6**	117	95.5	117	95.6
482.sphinx3	**238**	**82.0**	241	80.9	238	82.0	234	83.4	**235**	**82.8**	240	81.3

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"
```

Platform Notes

```
Hyper-Threading Technology = Disabled
Sysinfo program /work/cpu2006/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
running on rhiannon Tue Aug  7 21:44:32 2012

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
```

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$SPECfp\_base2006 =$ 70.4

Platform Notes (Continued)

```
    model name : Intel(R) Xeon(R) CPU E3-1280 V2 @ 3.60GHz
       1 "physical id"s (chips)
       4 "processors"
    cores, siblings (Caution: counting these is hw and system dependent.  The
    following excerpts from /proc/cpuinfo might not be reliable.  Use with
    caution.)
       cpu cores : 4
       siblings  : 4
       physical 0: cores 0 1 2 3
    cache size : 8192 KB

  From /proc/meminfo
    MemTotal:        7988740 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.2 (Santiago)

  From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
    Linux rhiannon 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
    x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Aug 7 16:35

  SPEC is set to: /work/cpu2006
    Filesystem     Type   Size  Used Avail Use% Mounted on
    /dev/sda2      ext4   193G   66G  118G  36% /work

  (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,compact"
 LD_LIBRARY_PATH = "/work/cpu2006/libs/32:/work/cpu2006/libs/64"
 OMP_NUM_THREADS = "4"

   Binaries were compiled on a system with
  2 x E5-2650 CPU + 96 GB memory using RHEL 6.2.

  Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
```

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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:
```
-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
```

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

482.sphinx3: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias`
`-parallel`

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 -opt-prefetch -ansi-alias`
`-static`

450.soplex: `-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch`
`-ansi-alias`

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`

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Peak Optimization Flags (Continued)

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

437.leslie3d: Same as 434.zeusmp

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

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: Same as 436.cactusADM

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120829.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120829.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.xml

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

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