SPEC® CFP2006 Result

Fujitsu

PRIMERGY RX2560 M2, Intel Xeon E5-2697 v4, 2.30 GHz

$SPECfp^{®}2006 =$ **126**

$SPECfp\_base2006 =$ **119**

CPU2006 license:	19	**Test date:**	May-2016
Test sponsor:	Fujitsu	**Hardware Availability:**	Apr-2016
Tested by:	Fujitsu	**Software Availability:**	Sep-2015

Scale: 0 30.0 75.0 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720 750 780 810 840 870 900 930 960 1010

- 410.bwaves — 641
- 416.gamess — 47.6 / 37.4
- 433.milc — 72.4
- 434.zeusmp — 214
- 435.gromacs — 47.5
- 436.cactusADM — 977
- 437.leslie3d — 388
- 444.namd — 32.5 / 31.5
- 447.dealII — 67.0
- 450.soplex — 49.1
- 453.povray — 72.7 / 64.1
- 454.calculix — 61.4 / 54.2
- 459.GemsFDTD — 292 / 249
- 465.tonto — 58.5 / 41.5
- 470.lbm — 938
- 481.wrf — 119
- 482.sphinx3 — 69.8

SPECfp_base2006 = 119

SPECfp2006 = 126

Hardware

CPU Name:	Intel Xeon E5-2697 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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 12 SP1 (x86_64) Kernel 3.12.49-11-default
Compiler:	C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	xfs
System State:	Run level 5 (multi-user)

Continued on next page

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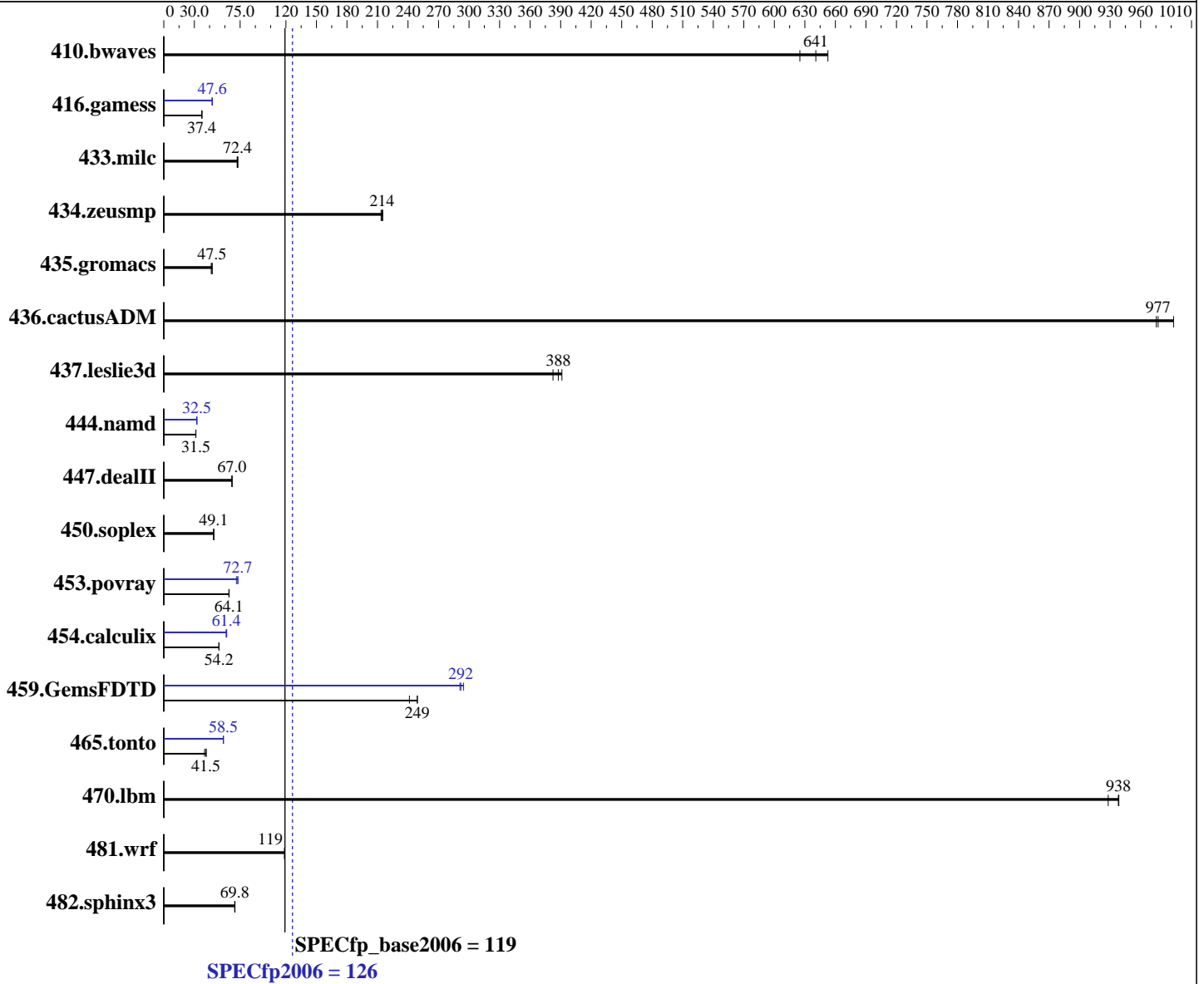
$SPECfp2006 =$ 126

$SPECfp\_base2006 =$ 119

L3 Cache:	45 MB I+D on chip per chip	Base Pointers: 64-bit
Other Cache:	None	Peak Pointers: 32/64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)	Other Software: None
Disk Subsystem:	1 x SATA, 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	**21.2**	**641**	20.8	653	21.7	625	**21.2**	**641**	20.8	653	21.7	625
416.gamess	524	37.3	**523**	**37.4**	522	37.5	411	47.7	**412**	**47.6**	412	47.5
433.milc	127	72.1	126	72.9	**127**	**72.4**	127	72.1	126	72.9	**127**	**72.4**
434.zeusmp	**42.4**	**214**	42.6	214	42.3	215	**42.4**	**214**	42.6	214	42.3	215
435.gromacs	150	47.5	**150**	**47.5**	153	46.6	150	47.5	**150**	**47.5**	153	46.6
436.cactusADM	12.0	992	12.3	975	**12.2**	**977**	12.0	992	12.3	975	**12.2**	**977**
437.leslie3d	24.6	382	**24.2**	**388**	24.0	391	24.6	382	**24.2**	**388**	24.0	391
444.namd	254	31.5	255	31.5	**254**	**31.5**	**247**	**32.5**	246	32.5	248	32.4
447.dealII	171	67.0	171	67.1	**171**	**67.0**	171	67.0	171	67.1	**171**	**67.0**
450.soplex	170	49.0	**170**	**49.1**	170	49.2	170	49.0	**170**	**49.1**	170	49.2
453.povray	**83.1**	**64.1**	82.9	64.2	83.1	64.0	73.1	72.8	**73.1**	**72.7**	74.5	71.4
454.calculix	**152**	**54.2**	152	54.2	152	54.2	133	61.8	**134**	**61.4**	134	61.4
459.GemsFDTD	42.6	249	44.0	241	**42.6**	**249**	**36.3**	**292**	36.0	295	36.5	291
465.tonto	236	41.7	**237**	**41.5**	246	40.1	**168**	**58.5**	168	58.7	169	58.4
470.lbm	14.6	939	14.8	928	**14.6**	**938**	14.6	939	14.8	928	**14.6**	**938**
481.wrf	94.0	119	94.2	119	**94.0**	**119**	94.0	119	94.2	119	**94.0**	**119**
482.sphinx3	**279**	**69.8**	280	69.7	279	70.0	**279**	**69.8**	280	69.7	279	70.0

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

```
BIOS configuration:
Energy Performance = Performance
Utilization Profile = Unbalanced
QPI snoop mode: Home Snoop
    COD Enable = Disabled, Early Snoop = Disabled, Home Snoop Dir OSB = Disabled
CPU C1E Support = Disabled
Sysinfo program /home/SPECcpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on RX2560M2 Thu May 12 13:41:42 2016
```

Fujitsu

PRIMERGY RX2560 M2, Intel Xeon E5-2697 v4, 2.30 GHz

SPECfp2006 = 126

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

Test date: May-2016
Hardware Availability: Apr-2016
Software Availability: Sep-2015

Platform Notes (Continued)

```
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
   model name : Intel(R) Xeon(R) CPU E5-2697 v4 @ 2.30GHz
      2 "physical id"s (chips)
      72 "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 : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 46080 KB

From /proc/meminfo
   MemTotal:       264313116 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 12 (x86_64)
      VERSION = 12
      PATCHLEVEL = 1
      # This file is deprecated and will be removed in a future service pack or
      release.
      # Please check /etc/os-release for details about this release.
   os-release:
      NAME="SLES"
      VERSION="12-SP1"
      VERSION_ID="12.1"
      PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
      ID="sles"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
   Linux RX2560M2 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
   (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 5 May 12 13:40

SPEC is set to: /home/SPECcpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      xfs   1.8T  5.7G  1.8T   1% /home
Additional information from dmidecode:
```

SPEC CFP2006 Result

Fujitsu

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Platform Notes (Continued)

```
   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.

   BIOS FUJITSU // American Megatrends Inc. V5.0.0.11 R1.6.0 for D3289-B1x
   03/11/2016
   Memory:
   16x Hynix Semiconductor HMA42GR7AFR4N-UH 16 GB 2 rank 2400 MHz
   8x NO DIMM NO DIMM

 (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"
OMP_NUM_THREADS = "36"

 Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
 memory using RedHat EL 7.1
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
 For information about Fujitsu please visit: http://www.fujitsu.com
```

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
```

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Software Availability: Sep-2015

Base Portability Flags (Continued)

```
        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:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

Fortran benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -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
```

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Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc

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Peak Optimization Flags (Continued)

465.tonto (continued):
```
-opt-malloc-options=3 -auto -unroll4
```

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: `-xCORE-AVX2 -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-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml

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

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