SPEC® CFP2006 Result

Sugon

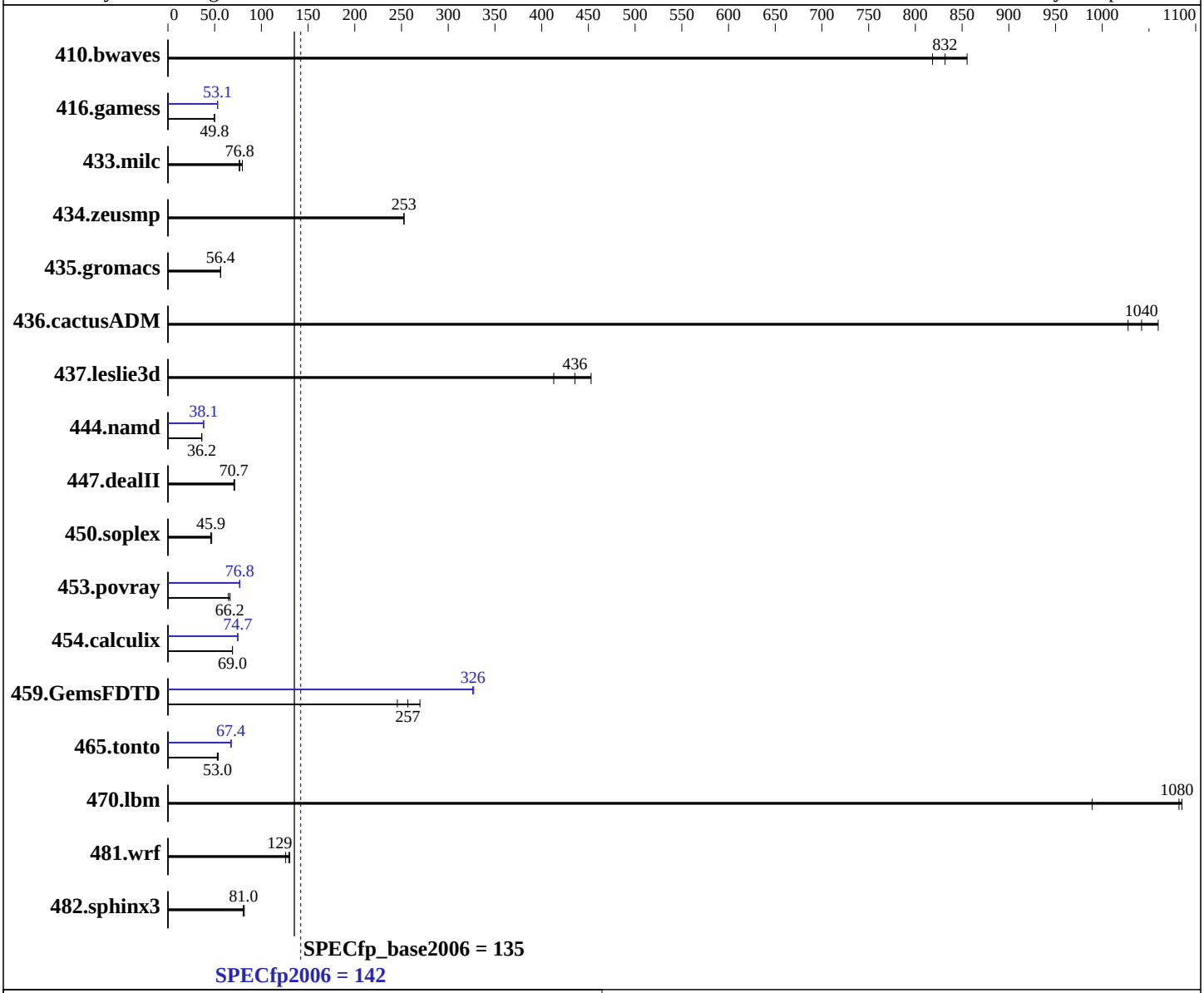
TC4600E(CX50-G30, Intel Gold 6132)

SPECfp®2006 = 142

SPECfp_base2006 = 135

CPU2006 license: 9046
Test sponsor: Sugon
Tested by: Sugon

Test date: Dec-2017
Hardware Availability: Dec-2017
Software Availability: Apr-2017



Hardware

CPU Name:	Intel Xeon Gold 6132
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	28 cores, 2 chips, 14 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo) 3.10.0-514.el7.x86_64
Compiler:	C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux
Auto Parallel:	Yes
File System:	xfs

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L3 Cache:	19.25 MB I+D on chip per chip	System State:	Run level 3 (Multi User)
Other Cache:	None	Base Pointers:	64-bit
Memory:	384 GB (12 x 32 GB 2Rx8 PC4-2667V-R)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 1.0 TB SATA, 7200 RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**16.3**	**832**	16.6	818	15.9	855	**16.3**	**832**	16.6	818	15.9	855
416.gamess	393	49.8	**393**	**49.8**	393	49.8	369	53.1	**369**	**53.1**	369	53.1
433.milc	**119**	**76.8**	120	76.3	115	79.6	**119**	**76.8**	120	76.3	115	79.6
434.zeusmp	36.1	252	36.0	253	**36.0**	**253**	36.1	252	36.0	253	**36.0**	**253**
435.gromacs	127	56.3	**127**	**56.4**	126	56.4	127	56.3	**127**	**56.4**	126	56.4
436.cactusADM	11.6	1030	11.3	1060	**11.5**	**1040**	11.6	1030	11.3	1060	**11.5**	**1040**
437.leslie3d	**21.6**	**436**	20.8	453	22.8	413	**21.6**	**436**	20.8	453	22.8	413
444.namd	**222**	**36.2**	222	36.1	222	36.2	210	38.1	210	38.2	**210**	**38.1**
447.dealII	162	70.6	**162**	**70.7**	160	71.4	162	70.6	**162**	**70.7**	160	71.4
450.soplex	178	46.9	182	45.9	**182**	**45.9**	178	46.9	182	45.9	**182**	**45.9**
453.povray	82.3	64.6	80.0	66.5	**80.3**	**66.2**	69.4	76.6	69.1	77.0	**69.3**	**76.8**
454.calculix	120	69.0	**120**	**69.0**	119	69.1	110	74.7	111	74.6	**110**	**74.7**
459.GemsFDTD	43.2	246	**41.3**	**257**	39.3	270	**32.5**	**326**	32.4	327	32.5	326
465.tonto	**186**	**53.0**	182	53.9	186	52.8	146	67.3	145	67.8	**146**	**67.4**
470.lbm	13.9	989	**12.7**	**1080**	12.7	1090	13.9	989	**12.7**	**1080**	12.7	1090
481.wrf	**86.4**	**129**	85.7	130	88.7	126	**86.4**	**129**	85.7	130	88.7	126
482.sphinx3	239	81.7	242	80.5	**241**	**81.0**	239	81.7	242	80.5	**241**	**81.0**

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

```
Sysinfo program /home/tianywan/benchmarks/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on localhost Sun Dec 10 05:27:17 2017

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) Gold 6132 CPU @ 2.60GHz
```

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Platform Notes (Continued)

```
        2 "physical id"s (chips)
        56 "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 : 14
        siblings  : 28
        physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
        physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
     cache size : 19712 KB

  From /proc/meminfo
     MemTotal:       394687848 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="Red Hat Enterprise Linux Server"
        VERSION="7.3 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.3"
        PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
     redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
     system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server

  uname -a:
     Linux localhost 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Dec 8 21:11

  SPEC is set to: /home/tianywan/benchmarks/cpu2006
     Filesystem            Type  Size  Used Avail Use% Mounted on
     /dev/mapper/rhel-home xfs   671G   42G  629G   7% /home
  Additional information from dmidecode:

     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 American Megatrends Inc. 0JGST024 11/15/2017American Megatrends Inc.
    0JGST024 11/15/2017
    Memory:
     24x Micron 36ASF4G72PZ-2G6D1 32 GB 2 rank 2666 MHz
     24x NO DIMM NO DIMM
```

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Platform Notes (Continued)

```
 (End of data from sysinfo program)
The dmidecode infomation displayed in sysinfo should have one line reading as:
12x Micron 36ASF4G72PZ-2G6D1 32 GB 2 rank 2666 MHz
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/tianywan/benchmarks/cpu2006/lib/ia32:/home/tianywan/benchmarks/cpu2006/lib/intel64:/home/tianywan/benchmarks/cpu2006/sh10.2"
OMP_NUM_THREADS = "28"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
 Transparent Huge Pages enabled by default.
 Filesystem page cache cleared with:
 shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
```

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
```

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Base Portability Flags (Continued)

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-AVX512 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX512 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

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:

Continued on next page

Peak Optimization Flags (Continued)

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -unroll2 -inline-level=0 -qopt-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -inline-calloc -qopt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX512 -ipo -O3 -no-prec-div -auto-ilp32

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Peak Optimization Flags (Continued)

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-ic17.0-official-linux64-revF.html`
`http://www.spec.org/cpu2006/flags/Sugon-Purley-Platform-Settings-revA-I.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml`
`http://www.spec.org/cpu2006/flags/Sugon-Purley-Platform-Settings-revA-I.xml`

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

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