



# SPEC<sup>®</sup> CFP2006 Result

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## Sugon

SPECfp<sup>®</sup>2006 = **145**

## W760-G30 (Intel Xeon Gold 6132)

SPECfp\_base2006 = **139**

CPU2006 license: 9046

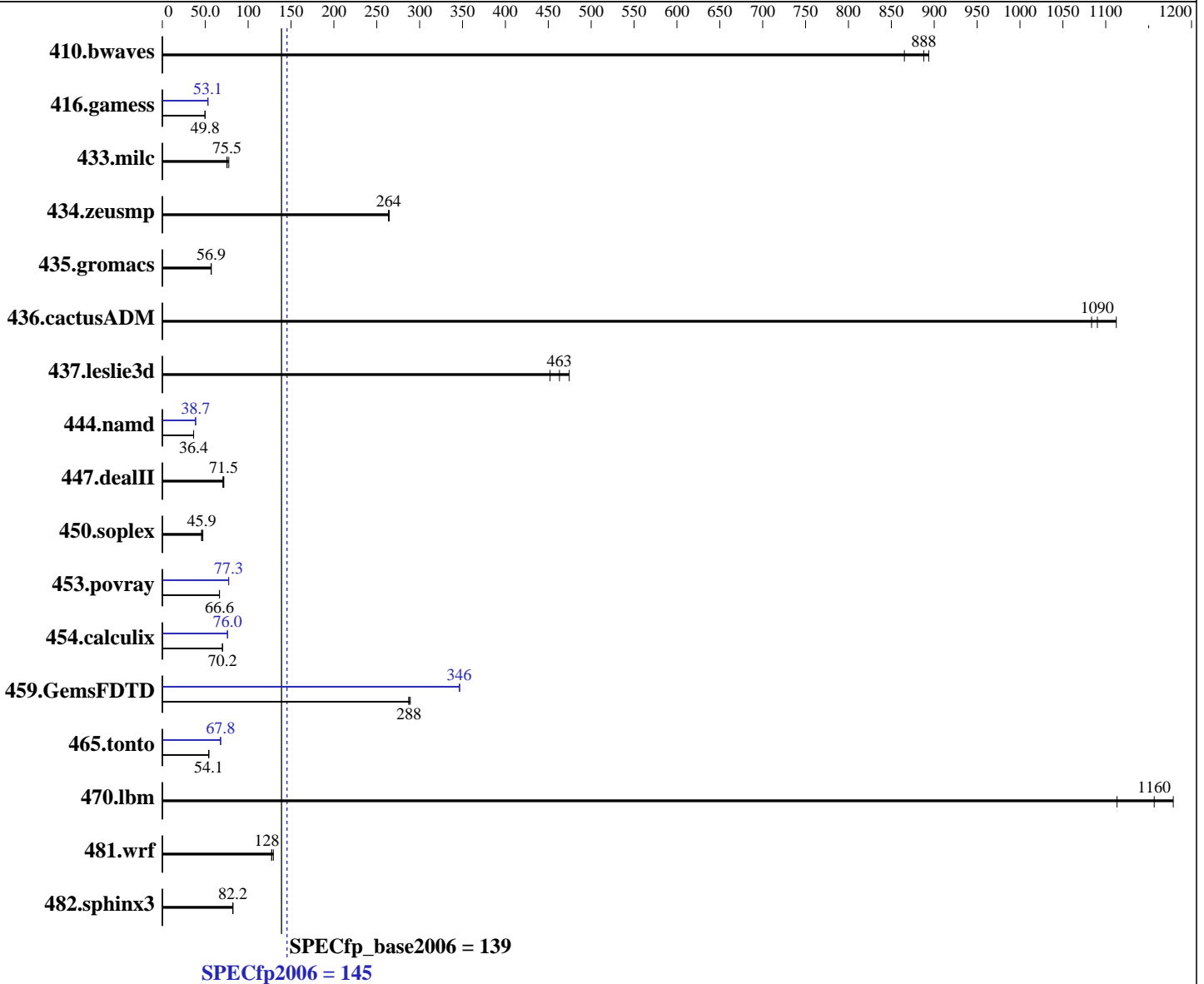
Test sponsor: Sugon

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  
 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

**Software**

Operating System: SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default  
 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  
 System State: Run level 5 (Multi User with GUI)

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L3 Cache: 19.25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2667V-R)  
 Disk Subsystem: 1 x 4.0 TB SATA, 10K RPM  
 Other Hardware: None

Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	15.2	894	15.7	865	<b><u>15.3</u></b>	<b><u>888</u></b>	15.2	894	15.7	865	<b><u>15.3</u></b>	<b><u>888</u></b>
416.gamess	393	49.8	393	49.8	<b><u>393</u></b>	<b><u>49.8</u></b>	<b><u>369</u></b>	<b><u>53.1</u></b>	369	53.0	368	53.1
433.milc	118	77.5	<b><u>122</u></b>	<b><u>75.5</u></b>	122	75.3	118	77.5	<b><u>122</u></b>	<b><u>75.5</u></b>	122	75.3
434.zeusmp	34.5	264	<b><u>34.5</u></b>	<b><u>264</u></b>	34.4	264	34.5	264	<b><u>34.5</u></b>	<b><u>264</u></b>	34.4	264
435.gromacs	125	57.0	126	56.8	<b><u>125</u></b>	<b><u>56.9</u></b>	125	57.0	126	56.8	<b><u>125</u></b>	<b><u>56.9</u></b>
436.cactusADM	<b><u>11.0</u></b>	<b><u>1090</u></b>	10.7	1110	11.0	1080	<b><u>11.0</u></b>	<b><u>1090</u></b>	10.7	1110	11.0	1080
437.leslie3d	20.8	452	<b><u>20.3</u></b>	<b><u>463</u></b>	19.8	474	20.8	452	<b><u>20.3</u></b>	<b><u>463</u></b>	19.8	474
444.namd	220	36.4	<b><u>220</u></b>	<b><u>36.4</u></b>	220	36.5	207	38.7	<b><u>207</u></b>	<b><u>38.7</u></b>	207	38.7
447.dealII	160	71.6	<b><u>160</u></b>	<b><u>71.5</u></b>	162	70.6	160	71.6	<b><u>160</u></b>	<b><u>71.5</u></b>	162	70.6
450.soplex	182	45.8	177	47.2	<b><u>182</u></b>	<b><u>45.9</u></b>	182	45.8	177	47.2	<b><u>182</u></b>	<b><u>45.9</u></b>
453.povray	80.0	66.5	79.8	66.6	<b><u>79.9</u></b>	<b><u>66.6</u></b>	68.8	77.4	<b><u>68.8</u></b>	<b><u>77.3</u></b>	68.9	77.2
454.calculix	117	70.2	<b><u>117</u></b>	<b><u>70.2</u></b>	118	70.0	<b><u>109</u></b>	<b><u>76.0</u></b>	109	76.0	109	75.9
459.GemsFDTD	36.9	287	<b><u>36.9</u></b>	<b><u>288</u></b>	36.7	289	30.6	346	30.6	347	<b><u>30.6</u></b>	<b><u>346</u></b>
465.tonto	<b><u>182</u></b>	<b><u>54.1</u></b>	182	54.0	181	54.2	145	67.7	145	67.9	<b><u>145</u></b>	<b><u>67.8</u></b>
470.lbm	12.3	1110	<b><u>11.9</u></b>	<b><u>1160</u></b>	11.7	1180	12.3	1110	<b><u>11.9</u></b>	<b><u>1160</u></b>	11.7	1180
481.wrf	87.7	127	<b><u>87.5</u></b>	<b><u>128</u></b>	86.3	129	87.7	127	<b><u>87.5</u></b>	<b><u>128</u></b>	86.3	129
482.sphinx3	238	82.0	237	82.4	<b><u>237</u></b>	<b><u>82.2</u></b>	238	82.0	237	82.4	<b><u>237</u></b>	<b><u>82.2</u></b>

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/tianyan/benchmarks/cpu2006/config/sysinfo.rev6993  
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
 running on localhost Sun Mar 5 05:02:30 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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Test date: Dec-2017  
Hardware Availability: Dec-2017  
Software Availability: Apr-2017

## Platform Notes (Continued)

2 "physical id"s (chips)  
28 "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  : 14
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:      394873700 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
/usr/bin/lsc_release -d
SUSE Linux Enterprise Server 12 SP2
```

```
From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 2
# 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-SP2"
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"
```

```
uname -a:
Linux localhost 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
(9464f67) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 5 Mar 2 13:46
```

```
SPEC is set to: /home/tianyanwan/benchmarks/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda5       xfs   3.6T  348G  3.3T  10% /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.

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## Platform Notes (Continued)

BIOS American Megatrends Inc. 0JGST023 11/06/2017

Memory:

24x Samsung M393A2K43CB2-CTD 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)

The Hyper Threading is Disabled.

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact"

LD\_LIBRARY\_PATH = "/home/tianyan/benchmarks/cpu2006/lib/ia32:/home/tianyan/benchmarks/cpu2006/lib/intel64:/home/tianyan/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

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## Base Portability Flags (Continued)

```
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-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



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## Peak Optimization Flags

### C benchmarks:

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

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## Peak Optimization Flags (Continued)

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

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>

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