



# SPEC® CFP2006 Result

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## Huawei

SPECfp®2006 = **69.2**

## Huawei 1288H V5 (Intel Xeon Bronze 3104)

SPECfp\_base2006 = **67.8**

CPU2006 license: 3175

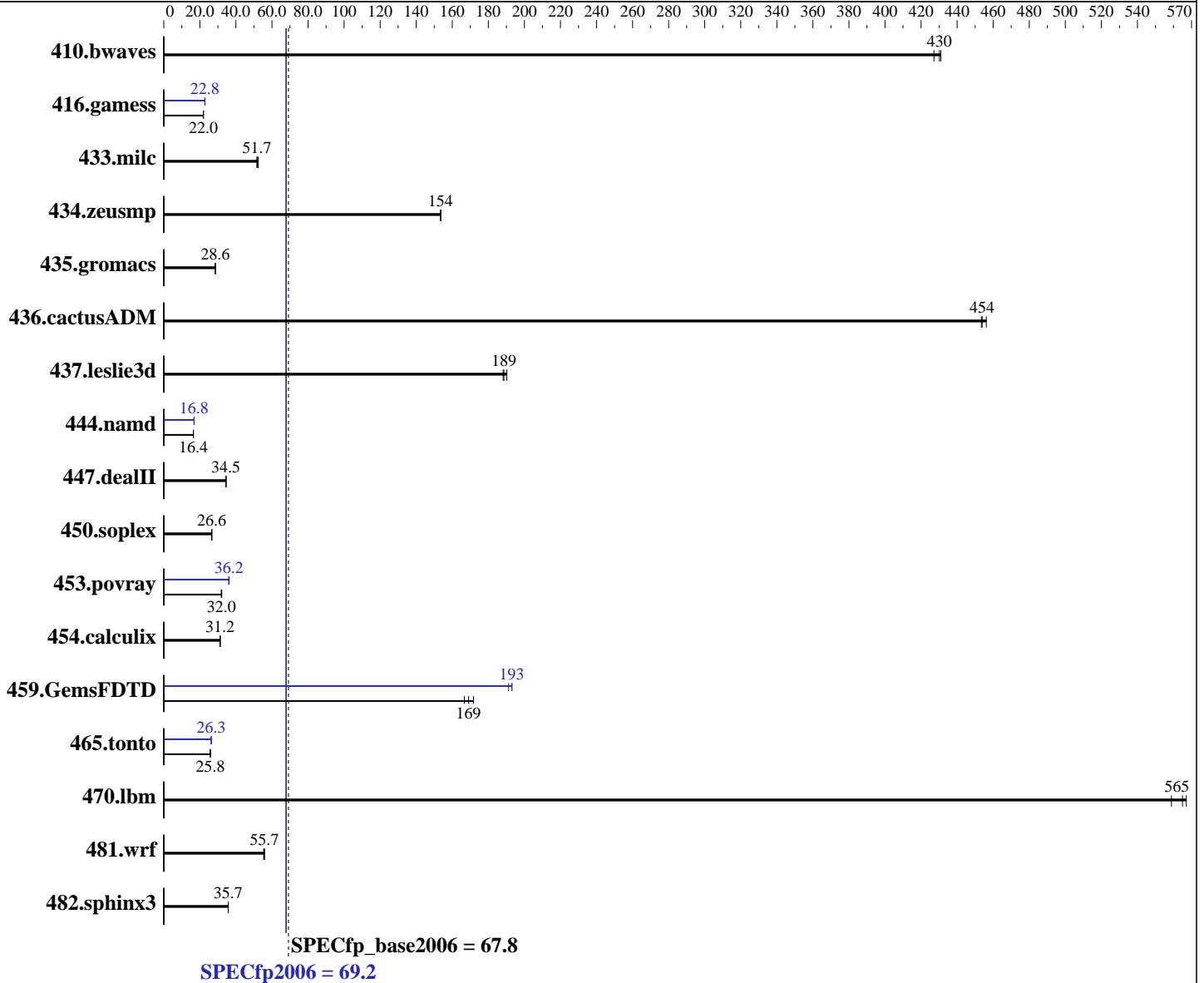
Test sponsor: Huawei

Tested by: Huawei

Test date: Aug-2017

Hardware Availability: Sep-2017

Software Availability: Nov-2016



Hardware	Software
CPU Name: Intel Xeon Bronze 3104	Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)
CPU Characteristics: 1700	3.10.0-514.el7.x86_64
CPU MHz: Integrated	Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux;
FPU: 12 cores, 2 chips, 6 cores/chip	Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux
CPU(s) enabled: 1,2 chip	Auto Parallel: Yes
CPU(s) orderable: 32 KB I + 32 KB D on chip per core	File System: xfs
Primary Cache: 1 MB I+D on chip per core	
Secondary Cache:	

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L3 Cache: 8.25 MB I+D on chip per chip  
Other Cache: None  
Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R, running at 2133 MHz)  
Disk Subsystem: 1 x 1200 GB SAS, 10000 RPM  
Other Hardware: None

System State: Run level 3 (multi-user)  
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	<b>31.6</b>	<b>430</b>	31.8	427	31.5	431	<b>31.6</b>	<b>430</b>	31.8	427	31.5	431
416.gamess	<b>891</b>	<b>22.0</b>	891	22.0	891	22.0	<b>859</b>	<b>22.8</b>	860	22.8	859	22.8
433.milc	178	51.7	175	52.3	<b>178</b>	<b>51.7</b>	178	51.7	175	52.3	<b>178</b>	<b>51.7</b>
434.zeusmp	<b>59.3</b>	<b>154</b>	59.3	153	59.2	154	<b>59.3</b>	<b>154</b>	59.3	153	59.2	154
435.gromacs	250	28.6	<b>250</b>	<b>28.6</b>	250	28.6	250	28.6	<b>250</b>	<b>28.6</b>	250	28.6
436.cactusADM	<b>26.3</b>	<b>454</b>	26.4	453	26.2	456	<b>26.3</b>	<b>454</b>	26.4	453	26.2	456
437.leslie3d	49.9	188	49.4	190	<b>49.8</b>	<b>189</b>	49.9	188	49.4	190	<b>49.8</b>	<b>189</b>
444.namd	489	16.4	489	16.4	<b>489</b>	<b>16.4</b>	477	16.8	478	16.8	<b>478</b>	<b>16.8</b>
447.dealII	<b>332</b>	<b>34.5</b>	331	34.6	332	34.5	<b>332</b>	<b>34.5</b>	331	34.6	332	34.5
450.soplex	315	26.5	312	26.7	<b>314</b>	<b>26.6</b>	315	26.5	312	26.7	<b>314</b>	<b>26.6</b>
453.povray	165	32.2	<b>166</b>	<b>32.0</b>	167	31.8	147	36.3	148	36.0	<b>147</b>	<b>36.2</b>
454.calculix	263	31.3	<b>264</b>	<b>31.2</b>	264	31.2	263	31.3	<b>264</b>	<b>31.2</b>	264	31.2
459.GemsFDTD	63.6	167	<b>62.8</b>	<b>169</b>	61.8	172	<b>55.0</b>	<b>193</b>	54.9	193	55.5	191
465.tonto	<b>381</b>	<b>25.8</b>	382	25.8	381	25.8	<b>374</b>	<b>26.3</b>	374	26.3	374	26.3
470.lbm	24.6	559	<b>24.3</b>	<b>565</b>	24.2	567	24.6	559	<b>24.3</b>	<b>565</b>	24.2	567
481.wrf	200	55.8	202	55.4	<b>200</b>	<b>55.7</b>	200	55.8	202	55.4	<b>200</b>	<b>55.7</b>
482.sphinx3	<b>545</b>	<b>35.7</b>	545	35.8	546	35.7	<b>545</b>	<b>35.7</b>	545	35.8	546	35.7

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:

Set Power Efficiency Mode to Custom

Sysinfo program /spec17/config/sysinfo.rev6993

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)

running on localhost.localdomain Thu Aug 10 03:19:21 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>

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## Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Bronze 3104 CPU @ 1.70GHz
 2 "physical id"s (chips)
12 "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 : 6
  siblings  : 6
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 8448 KB

```

```

From /proc/meminfo
MemTotal:      394145204 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.localdomain 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 Aug 9 11:35

```

SPEC is set to: /spec17
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   262G   88G  175G  34% /

```

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 INSYDE Corp. 0.20 07/14/2017

Memory:

24x Samsung M393A2K43BB1-CTD 16 GB 2 rank 2666 MHz, configured at 2133 MHz  
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## Platform Notes (Continued)

(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 = "/spec17/libs/32:/spec17/libs/64:/spec17/sh10.2"

OMP\_NUM\_THREADS = "12"

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 with:

echo always > /sys/kernel/mm/transparent\_hugepage/enabled

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

## 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-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch  
C++ benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
Fortran benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch  
Benchmarks using both Fortran and C:  
-xCORE-AVX2 -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:

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## 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-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -fno-alias -auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(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-AVX2(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-AVX2(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-AVX2(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: basepeak = yes

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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.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.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.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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