



# SPEC® CFP2006 Result

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## Huawei

### SPECfp®\_rate2006 = Not Run

### Huawei RH8100 V3 (Intel Xeon E7-8870 v4)

### SPECfp\_rate\_base2006 = 4240

CPU2006 license: 3175

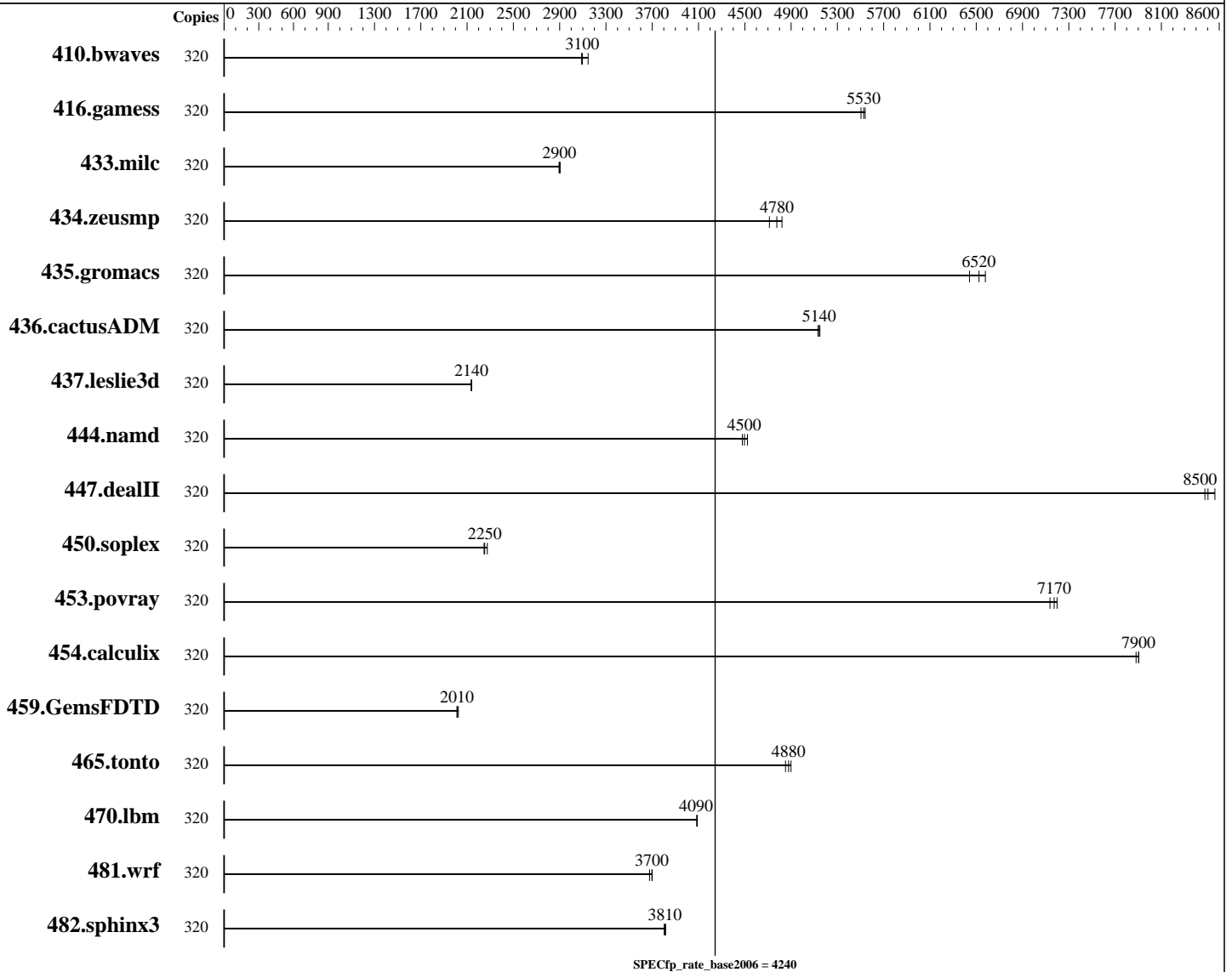
Test sponsor: Huawei

Tested by: Huawei

Test date: Aug-2016

Hardware Availability: Jun-2016

Software Availability: Oct-2015



### Hardware

CPU Name: Intel Xeon E7-8870 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 160 cores, 8 chips, 20 cores/chip, 2 threads/core  
 CPU(s) orderable: 4,6,8 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

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### Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)  
 3.10.0-327.el7.x86\_64  
 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: No  
 File System: xfs

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L3 Cache: 50 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)  
 Disk Subsystem: 2 x 600GB SAS, 10K RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	320	<b>1404</b>	<b>3100</b>	1382	3150	1407	3090							
416.gamess	320	1138	5500	1131	5540	<b>1134</b>	<b>5530</b>							
433.milc	320	1015	2890	<b>1013</b>	<b>2900</b>	1011	2900							
434.zeusmp	320	604	4820	618	4710	<b>610</b>	<b>4780</b>							
435.gromacs	320	347	6580	<b>350</b>	<b>6520</b>	355	6440							
436.cactusADM	320	745	5130	<b>744</b>	<b>5140</b>	743	5150							
437.leslie3d	320	<b>1408</b>	<b>2140</b>	1409	2140	1406	2140							
444.namd	320	<b>571</b>	<b>4500</b>	567	4520	573	4480							
447.dealII	320	428	8560	432	8480	<b>431</b>	<b>8500</b>							
450.soplex	320	1173	2270	<b>1185</b>	<b>2250</b>	1188	2250							
453.povray	320	239	7140	<b>237</b>	<b>7170</b>	236	7200							
454.calculix	320	335	7880	334	7900	<b>334</b>	<b>7900</b>							
459.GemsFDTD	320	1677	2020	1686	2010	<b>1686</b>	<b>2010</b>							
465.tonto	320	643	4900	<b>645</b>	<b>4880</b>	649	4850							
470.lbm	320	1075	4090	<b>1076</b>	<b>4090</b>	1077	4080							
481.wrf	320	966	3700	972	3680	<b>967</b>	<b>3700</b>							
482.sphinx3	320	1634	3820	<b>1637</b>	<b>3810</b>	1640	3800							

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
Turbo mode set with:  
cpupower -c all frequency-set -g performance



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## Platform Notes

BIOS configuration:

Set Power Efficiency Mode to Performance

Set Lock\_step to disabled

Baseboard Management Controller used to adjust the fan speed to 100%

Set C-State to C0/C1

Sysinfo program /home/spec/config/sysinfo.rev6914

\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1

running on RH8100v3 Tue Aug 9 17:08:50 2016

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 E7-8870 v4 @ 2.10GHz

8 "physical id"s (chips)

320 "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 : 20

siblings : 40

physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 2: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 3: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 4: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 5: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 6: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

physical 7: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

cache size : 51200 KB

From /proc/meminfo

MemTotal: 1056485736 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

From /etc/\*release\* /etc/\*version\*

os-release:

NAME="Red Hat Enterprise Linux Server"

VERSION="7.2 (Maipo)"

ID="rhel"

ID\_LIKE="fedora"

VERSION\_ID="7.2"

PRETTY\_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"

ANSI\_COLOR="0;31"

CPE\_NAME="cpe:/o:redhat:enterprise\_linux:7.2:GA:server"

redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)

system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:7.2:ga:server

uname -a:

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## Platform Notes (Continued)

```
Linux RH8100v3 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Aug 9 10:01
```

```
SPEC is set to: /home/spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   978G  143G  835G  15% /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. 5.11 02/05/2016

Memory:  
64x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz  
128x NO DIMM NO DIMM

(End of data from sysinfo program)  
Regarding the sysinfo display about the memory installed, the correct amount of memory is 1024 GB and the dmidecode description should have two lines reading as:  
64x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz  
128x NO DIMM NO DIMM

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/home/spec/libs/32:/home/spec/libs/64:/home/spec/sh"

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  
Filesystem page cache cleared with:  
echo 1> /proc/sys/vm/drop\_caches  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>

## Base Compiler Invocation

C benchmarks:  
icc -m64  
  
C++ benchmarks:  
icpc -m64

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## Base Compiler Invocation (Continued)

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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3



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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/Huawei-Platform-Settings-V1.2-BDW-RevG.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/Huawei-Platform-Settings-V1.2-BDW-RevG.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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