



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

**SPECfp<sup>®</sup>2006 = 93.2**

Huawei RH2288H V3 (Intel Xeon E5-2630L v3)

**SPECfp\_base2006 = 87.7**

CPU2006 license: 3175

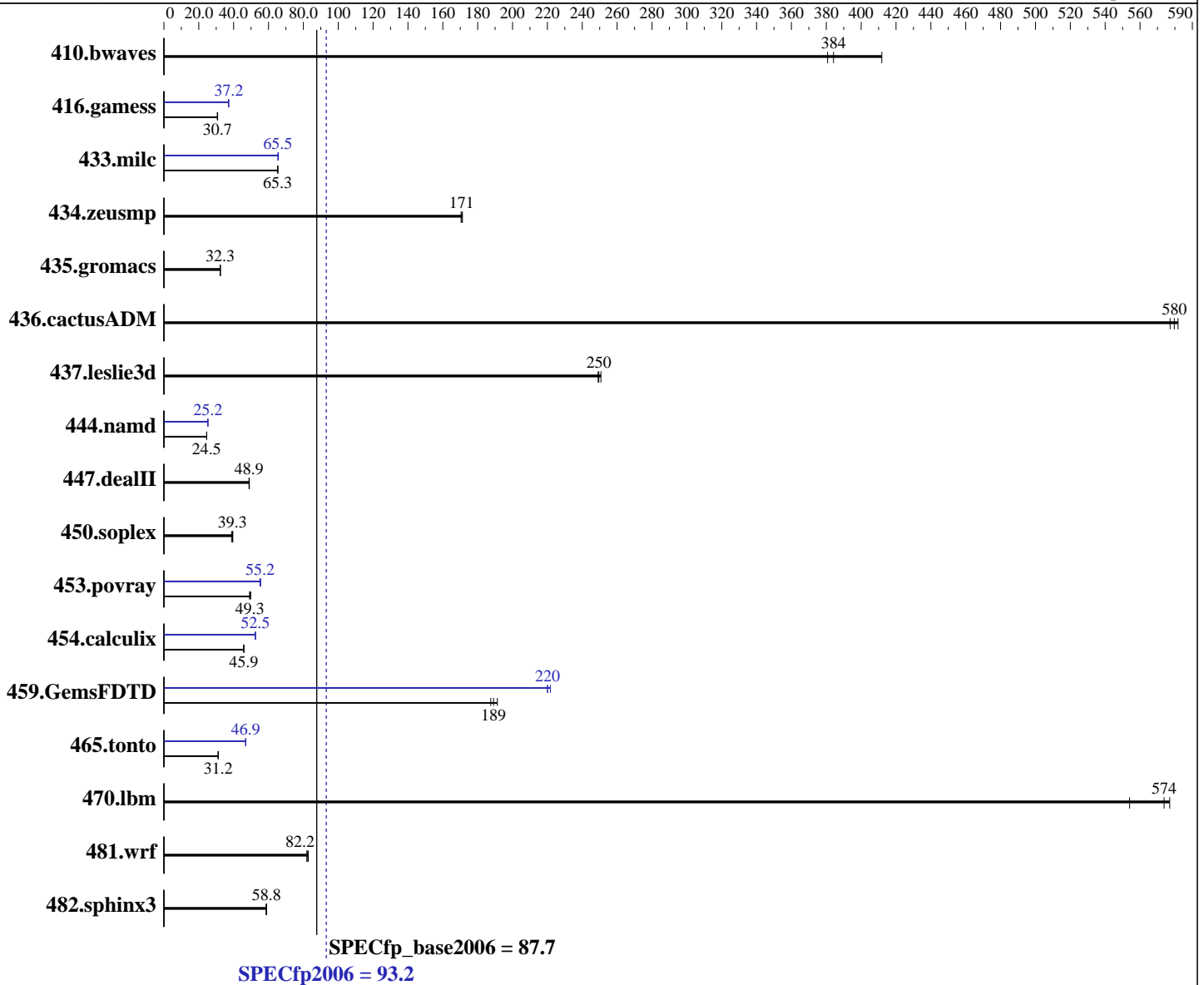
Test date: Jan-2015

Test sponsor: Huawei

Hardware Availability: Sep-2014

Tested by: Huawei

Software Availability: Sep-2014



Hardware		Software	
CPU Name:	Intel Xeon E5-2630L v3	Operating System:	Red Hat Enterprise Linux Server release 7.0 (Maipo)
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz		3.10.0-123.el7.x86_64
CPU MHz:	1800	Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;
FPU:	Integrated		Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip	Auto Parallel:	Yes
CPU(s) orderable:	1,2 chip	File System:	ext4
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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L3 Cache: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)  
 Disk Subsystem: 1 x 300 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	33.0	412	35.7	381	<b>35.4</b>	<b>384</b>	33.0	412	35.7	381	<b>35.4</b>	<b>384</b>
416.gamess	638	30.7	<b>638</b>	<b>30.7</b>	635	30.8	<b>527</b>	<b>37.2</b>	529	37.0	526	37.2
433.milc	<b>141</b>	<b>65.3</b>	140	65.4	141	65.2	<b>140</b>	<b>65.5</b>	140	65.6	140	65.4
434.zeusmp	53.1	171	<b>53.3</b>	<b>171</b>	53.4	170	53.1	171	<b>53.3</b>	<b>171</b>	53.4	170
435.gromacs	221	32.3	<b>221</b>	<b>32.3</b>	221	32.4	221	32.3	<b>221</b>	<b>32.3</b>	221	32.4
436.cactusADM	20.7	577	20.5	582	<b>20.6</b>	<b>580</b>	20.7	577	20.5	582	<b>20.6</b>	<b>580</b>
437.leslie3d	37.7	249	37.5	251	<b>37.7</b>	<b>250</b>	37.7	249	37.5	251	<b>37.7</b>	<b>250</b>
444.namd	327	24.5	<b>327</b>	<b>24.5</b>	327	24.6	318	25.2	318	25.2	<b>318</b>	<b>25.2</b>
447.dealII	233	49.0	<b>234</b>	<b>48.9</b>	234	48.9	233	49.0	<b>234</b>	<b>48.9</b>	234	48.9
450.soplex	<b>212</b>	<b>39.3</b>	211	39.5	215	38.8	<b>212</b>	<b>39.3</b>	211	39.5	215	38.8
453.povray	108	49.2	<b>108</b>	<b>49.3</b>	107	49.8	<b>96.4</b>	<b>55.2</b>	96.5	55.1	95.8	55.5
454.calculix	180	45.8	<b>180</b>	<b>45.9</b>	180	45.9	157	52.5	<b>157</b>	<b>52.5</b>	157	52.4
459.GemsFDTD	<b>56.1</b>	<b>189</b>	56.6	188	55.5	191	<b>48.2</b>	<b>220</b>	48.2	220	47.9	222
465.tonto	317	31.1	<b>316</b>	<b>31.2</b>	316	31.2	<b>210</b>	<b>46.9</b>	209	47.0	210	46.9
470.lbm	<b>23.9</b>	<b>574</b>	24.8	554	23.8	577	<b>23.9</b>	<b>574</b>	24.8	554	23.8	577
481.wrf	136	82.0	<b>136</b>	<b>82.2</b>	135	82.8	136	82.0	<b>136</b>	<b>82.2</b>	135	82.8
482.sphinx3	<b>331</b>	<b>58.8</b>	331	58.9	333	58.6	<b>331</b>	<b>58.8</b>	331	58.9	333	58.6

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  
 Set Snoop Mode to HS  
 Set Hyper-Threading to Disabled  
 Baseboard Management Controller used to adjust the fan speed to 100%  
 Sysinfo program /spec15/config/sysinfo.rev6914  
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
 running on localhost.localdomain Tue Jan 6 14:26:11 2015

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Hardware Availability: Sep-2014

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## 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 E5-2630L v3 @ 1.80GHz
 2 "physical id"s (chips)
16 "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 : 8
  siblings  : 8
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

```

```

From /proc/meminfo
MemTotal:      263721480 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jan 6 14:24

```

SPEC is set to: /spec15
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb1       ext4  237G  11G  215G   5% /

```

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 Insyde Corp. 1.19 10/10/2014

Memory:

8x NO DIMM NO DIMM 3 rank

8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1867 MHz

8x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1867 MHz

(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 = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"

OMP\_NUM\_THREADS = "16"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

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

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## Base Portability Flags (Continued)

```

447.deallI: -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

```

## Peak Portability Flags

Same as Base Portability Flags



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Tested by: Huawei

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Sep-2014

## Peak Optimization Flags

### C benchmarks:

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

### C++ benchmarks:

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

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

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

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -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(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

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Software Availability: Sep-2014

## Peak Optimization Flags (Continued)

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-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.1.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.1.xml>

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