



SPEC[®] CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp[®]2006 = **128**

Huawei RH2288H V3 (Intel Xeon E5-2699A v4)

SPECfp_base2006 = **122**

CPU2006 license: 3175

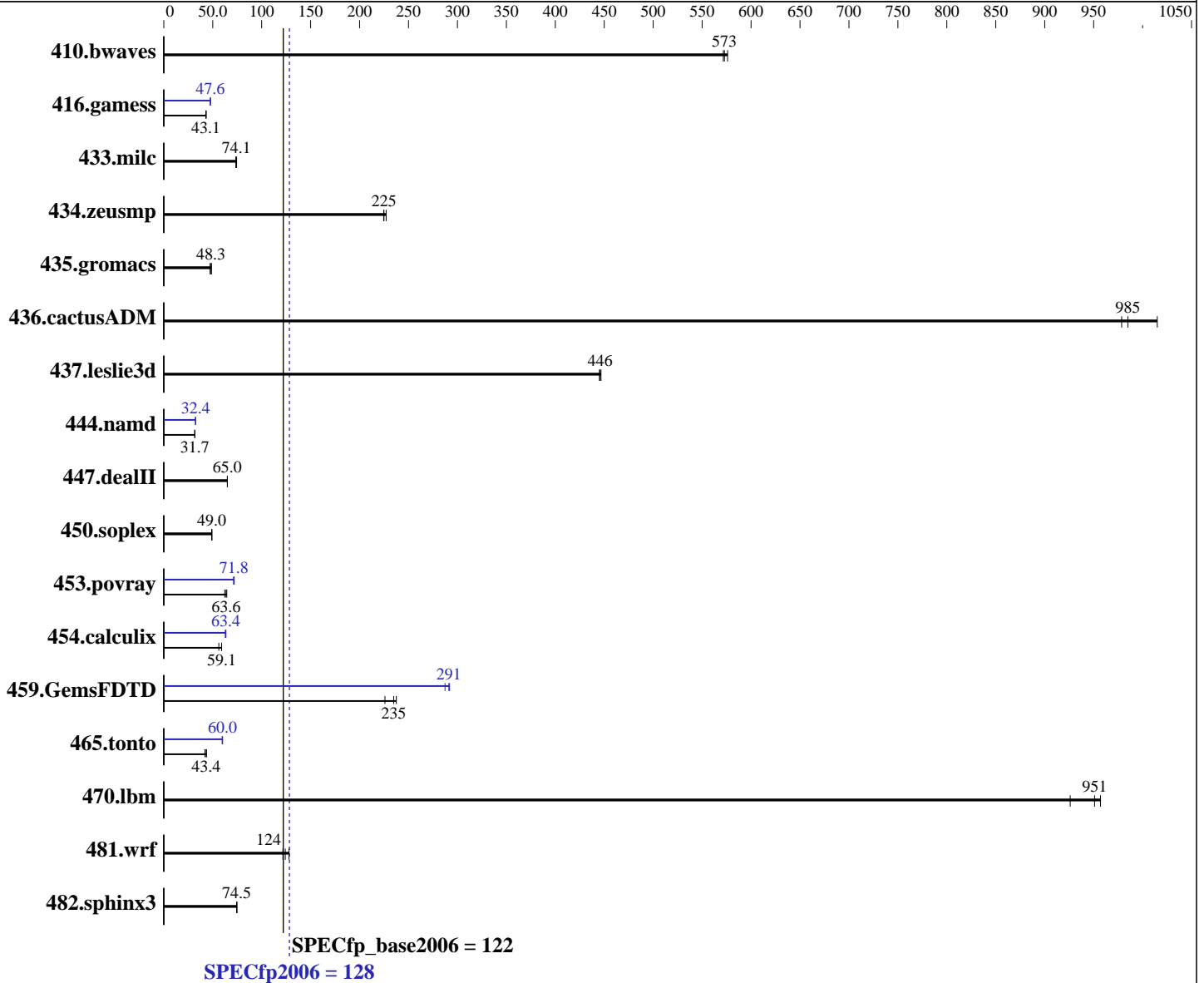
Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Apr-2016

Software Availability: Sep-2016



Hardware

CPU Name: Intel Xeon E5-2699A v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 44 cores, 2 chips, 22 cores/chip
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)
 3.10.0-327.el7.x86_64
 Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux;
 Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux
 Auto Parallel: Yes
 File System: xfs

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = **128**

Huawei RH2288H V3 (Intel Xeon E5-2699A v4)

SPECfp_base2006 = **122**

CPU2006 license: 3175

Test date: Jun-2017

Test sponsor: Huawei

Hardware Availability: Apr-2016

Tested by: Huawei

Software Availability: Sep-2016

L3 Cache: 55 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx8 PC4-2400T-R)
 Disk Subsystem: 1 x 1000 GB SATA, 7200 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	<u>23.7</u>	<u>573</u>	23.6	576	23.8	572	<u>23.7</u>	<u>573</u>	23.6	576	23.8	572
416.gamess	454	43.2	<u>454</u>	<u>43.1</u>	455	43.0	411	47.6	412	47.6	<u>411</u>	<u>47.6</u>
433.milc	123	74.4	<u>124</u>	<u>74.1</u>	125	73.6	123	74.4	<u>124</u>	<u>74.1</u>	125	73.6
434.zeusmp	<u>40.5</u>	<u>225</u>	40.5	225	40.1	227	<u>40.5</u>	<u>225</u>	40.5	225	40.1	227
435.gromacs	151	47.3	147	48.6	<u>148</u>	<u>48.3</u>	151	47.3	147	48.6	<u>148</u>	<u>48.3</u>
436.cactusADM	<u>12.1</u>	<u>985</u>	12.2	979	11.8	1010	<u>12.1</u>	<u>985</u>	12.2	979	11.8	1010
437.leslie3d	21.1	445	21.0	447	<u>21.1</u>	<u>446</u>	21.1	445	21.0	447	<u>21.1</u>	<u>446</u>
444.namd	<u>253</u>	<u>31.7</u>	253	31.7	253	31.7	<u>247</u>	<u>32.4</u>	247	32.4	247	32.4
447.dealII	176	64.9	176	65.0	<u>176</u>	<u>65.0</u>	176	64.9	176	65.0	<u>176</u>	<u>65.0</u>
450.soplex	170	49.1	171	48.9	<u>170</u>	<u>49.0</u>	170	49.1	171	48.9	<u>170</u>	<u>49.0</u>
453.povray	85.5	62.3	<u>83.7</u>	<u>63.6</u>	82.7	64.3	74.7	71.2	<u>74.1</u>	<u>71.8</u>	73.9	72.0
454.calculix	147	56.2	140	59.1	<u>140</u>	<u>59.1</u>	131	62.8	<u>130</u>	<u>63.4</u>	130	63.4
459.GemsFDTD	47.0	226	<u>45.2</u>	<u>235</u>	44.7	238	36.9	287	<u>36.4</u>	<u>291</u>	36.3	292
465.tonto	226	43.5	<u>227</u>	<u>43.4</u>	234	42.1	165	59.6	<u>164</u>	<u>60.0</u>	164	60.1
470.lbm	14.8	926	14.4	957	<u>14.4</u>	<u>951</u>	14.8	926	14.4	957	<u>14.4</u>	<u>951</u>
481.wrf	<u>90.0</u>	<u>124</u>	87.3	128	91.8	122	<u>90.0</u>	<u>124</u>	87.3	128	91.8	122
482.sphinx3	<u>262</u>	<u>74.5</u>	262	74.4	261	74.8	<u>262</u>	<u>74.5</u>	262	74.4	261	74.8

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 mode
 Set Patrol Scrub to Disable
 Set Hyper-Threading to Disable
 Sysinfo program /spec17/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on localhost.localdomain Fri Jun 2 17:14:25 2017

This section contains SUT (System Under Test) info as seen by
Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 128

Huawei RH2288H V3 (Intel Xeon E5-2699A v4)

SPECfp_base2006 = 122

CPU2006 license: 3175

Test date: Jun-2017

Test sponsor: Huawei

Hardware Availability: Apr-2016

Tested by: Huawei

Software Availability: Sep-2016

Platform Notes (Continued)

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 E5-2699A v4 @ 2.40GHz
    2 "physical id"s (chips)
    44 "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 : 22
    siblings  : 22
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
    28
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
    28
  cache size : 56320 KB

```

```

From /proc/meminfo
MemTotal:      263566508 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:
Linux localhost.localdomain 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 Jun 2 12:56

```

SPEC is set to: /spec17
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda2       xfs       254G      71G  184G  28% /

```

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.

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 128

Huawei RH2288H V3 (Intel Xeon E5-2699A v4)

SPECfp_base2006 = 122

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Apr-2016

Software Availability: Sep-2016

Platform Notes (Continued)

BIOS Insyde Corp. 3.32 09/14/2016

Memory:

8x NO DIMM NO DIMM

16x Samsung M393A2K43BB1-CRC 16 GB 2 rank 2400 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"

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

OMP_NUM_THREADS = "44"

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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 128

Huawei RH2288H V3 (Intel Xeon E5-2699A v4)

SPECfp_base2006 = 122

CPU2006 license: 3175

Test date: Jun-2017

Test sponsor: Huawei

Hardware Availability: Apr-2016

Tested by: Huawei

Software Availability: Sep-2016

Base Portability Flags (Continued)

```

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 -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



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 128

Huawei RH2288H V3 (Intel Xeon E5-2699A v4)

SPECfp_base2006 = 122

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Apr-2016

Software Availability: Sep-2016

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-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.dealII: 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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 128

Huawei RH2288H V3 (Intel Xeon E5-2699A v4)

SPECfp_base2006 = 122

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Apr-2016

Software Availability: Sep-2016

Peak Optimization Flags (Continued)

454.calculix: -xCORE-AVX2 -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.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.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-BDW-V1.0.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.

Report generated on Tue Jun 27 17:13:50 2017 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 27 June 2017.

Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>

Page 7