



SPEC® CFP2006 Result

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Huawei

SPECfp®2006 = **NC**

Huawei RH2288H V3 (Intel Xeon E5-2699 v4)

SPECfp_base2006 = **NC**

CPU2006 license: 3175

Test date: Jun-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not
a href="http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2">SPEC CPU run
up policy on gener

- 410.bwaves |
- 416.gamess |
- 433.milc |
- 434.zeusmp |
- 435.gromacs |
- 436.cactusADM |
- 437.leslie3d |
- 444.namd |
- 447.dealII |
- 450.soplex |
- 453.povray |
- 454.calculix |
- 459.GemsFDTD |
- 465.tonto |
- 471.lbm |
- 481.wrf |
- 482.sphinx3 |

Non-Compliant



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Hardware

CPU Name: Intel Xeon E5-2699 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2200
 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
 L3 Cache: 55 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC 2400T-
 1 x 500 GB SATA, 7200 RPM)
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.2
 (El7)
 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
 Architecture: Parallel
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

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Results Table

Benchmark	Base						Peak						
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	
410.bwaves	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
416.gamess	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
433.milc	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
434.zeusmp	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
435.gromacs	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
436.cactusADM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
437.leslie3d	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
444.namd	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
447.dealII	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
450.soplex	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
453.povray	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
454.calculix	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
459.GemsFDTD	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
465.tonto	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
470.lbm	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
481.wrf	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
482.sphinx3	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

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

Operating System Notes

each shell 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 /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Wed Jun 1 02:27:10 2016

```

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http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2 SPEC CPU run
<https://www.spec.org/osg/policy.html#AppendixC> gener

Platform Notes (Continued)

This section contains SUT (System Under Test) info as seen from some common utilities. To remove or add to this section, see: <http://www.spec.org/cpu2006/Docs/config.html#sinfo>

```
From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
 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 6 7 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 6 7 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
cache size     : 56320 KB
```

```
From /proc/meminfo
MemTotal:      26351508 kB
HugePages_Total:
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 May 31 11:46
```

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Platform Notes (Continued)

SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 440G 87G 354G 20% /

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. 8.08 07/29/2016

Memory:

8x NO DIMM NO DIMM 3 rank
8x Samsung M393A2G40EB1-RC 16 GB 1 rank 2400 MHz
8x Samsung M393A2G40EB1-RC 16 GB 1 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,1,0"
LD_LIBRARY_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"
OMP_NUM_THREADS = "14"

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

and invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Continued on next page



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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.lelie3d: -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
483.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

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Base Optimization Flags (Continued)

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

Peak Optimization Flags

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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

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Peak Optimization Flags (Continued)

447.deallI: basepeak = yes

450.soplex: basepeak = yes

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

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll12
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll12
-inline-level=0 -opt-prefetch -parallel

465.tomcat: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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up policy on http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2 **SPEC CPU run**
up policy on <https://www.spec.org/osg/policy.html#AppendixC> **gener**

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-ic16.0-official-linux64.html>

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

You can also download the XML flags source 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-BDW-V1.0.xml>

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For other inquiries, please contact webmaster@spec.org.

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