



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]_rate2006 = NC

Huawei RH1288 V3 (Intel Xeon E5-2680 v4)

SPECfp_rate_base2006 = NC

CPU2006 license: 3175

Test date: Apr-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

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

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

Hardware

CPU Name: Intel Xeon E5-2680 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core
 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: 35 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC 2400T-
 Disk Subsystem: 1 x 1000 GB SATA, 7200rpm
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.0
 (El7) (x86_64)
 3.10.0-123.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 No
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

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Results Table

| Benchmark | Base | | | | | | | | Peak | | | | | | | |
|---------------|--------|---------|-------|---------|-------|---------|-------|--------|---------|-------|---------|-------|---------|-------|--|--|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | | |
| 410.bwaves | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 416.gamess | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 433.milc | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 434.zeusmp | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 435.gromacs | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 436.cactusADM | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 437.leslie3d | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 444.namd | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 447.dealII | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 450.soplex | 56 | NC | NC | NC | NC | NC | NC | 28 | NC | NC | NC | NC | NC | NC | | |
| 453.povray | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 454.calculix | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 459.GemsFDTD | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 465.tonto | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 470.lbm | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 481.wrf | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |
| 482.sphinx3 | 56 | NC | NC | NC | NC | NC | NC | 56 | NC | NC | NC | NC | NC | NC | | |

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"



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a href="http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2">SPEC CPU run
up policy on gener

Platform Notes

BIOS configuration:

Set Power Efficiency Mode to Performance

Set Snoop Mode to COD mode

Set Patrol Scrub to Disable

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

Sysinfo program /spec16/config/sysinfo.rev6.4

\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b2285932ceab81e28219e1

running on localhost.localdomain Sun Apr 24 21:43:12 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 E5-2680 v4@ 2.40GHz

2 "physical id"s (chips)

56 "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 : 7

siblings : 14

physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

cache size: 17920 kB

From /proc/meminfo

MemTotal: 63566036 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

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

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Platform Notes (Continued)

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

```
run-level 3 Apr 8 05:49
```

```
SPEC is set to: /spec16
```

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  913G  19G   58G  13% /
```

```
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 "DMTF SMBIOS" standard.
```

```
BIOS Insyde Corp. 3.09 02/22/2016
```

```
Memory:
```

```
8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz
```

```
(End of data from dmidecode program)
```

General Notes

Environment variable set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"
```

```
Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
RAM on 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>
```



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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
465.tomcat: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wt: -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

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Base Optimization Flags (Continued)

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

Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -x32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak 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

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Peak Portability Flags (Continued)

```

450.soplex: -D_FILE_OFFSET_BITS=64
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_USE_FLAGS -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

```

Peak Optimization Flags

C benchmarks:

```

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) -opt-mem-layout-trans=3(pass 2)
         -prof-use(pass 2) -fno-alias -auto-ilp32
447.cgalII: basepeak = yes

```

```

450.soplex: -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) -opt-mem-layout-trans=3(pass 2)
         -prof-use(pass 2) -opt-malloc-options=3

```

```

453.povray: -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) -opt-mem-layout-trans=3(pass 2)
         -prof-use(pass 2) -unroll4 -ansi-alias

```

Fortran benchmarks:

Continued on next page



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up policy on <https://www.spec.org/osg/policy.html#AppendixC>>gener

Peak Optimization Flags (Continued)

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) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -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) -unroll14 -auto
-inline-alloc -opt-alloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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 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-BDW-V1.0.xml>



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compliant with the SPEC CPU run and reporting rules. For more information on the SPEC CPU run and reporting rules, please refer to the SPEC CPU run and reporting rules page on http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2 or the SPEC CPU run and reporting rules page on <https://www.spec.org/osg/policy.html#AppendixC>.

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

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