



SPEC® CFP2006 Result

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Huawei

SPECfp®2006 = **NC**

Huawei RH2288 V3 (Intel Xeon E5-2695 v4)

SPECfp_base2006 = **NC**

CPU2006 license: 3175

Test date: Mar-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Aug-2015

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 E5-2695 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2100
 FPU: Integrated
 CPU(s) enabled: 36 cores, 2 chips, 18 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: 45 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC 2400T-
 Disk Subsystem: 1 x 500GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.0
 (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 Yes
 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
416.gamess	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
434.zeusmp	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
436.cactusADM	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
444.namd	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
450.soplex	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
454.calculix	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
465.tonto	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
481.wrf	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

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 Tue Mar 8 07:51:29 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 E5-2695 v4 @ 2.10GHz
 2 "physical id"s (chips)
 36 "processors"
cores, siblings (Caution: containing these s hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
cpu cores      : 18
siblings       : 18
physical 0:    : cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1:    : cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size     : 46080 KB
```

```
From /proc/meminfo
MemTotal:      263568000 kB
HugePages_Total: 0
Hugepagesize:  48 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 Mar 8 07:50

SPEC is set to: /spec16

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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

Platform Notes (Continued)

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   449G  139G  311G  31% /
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. 3.12 03/03/2016

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 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 = "16"
```

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using Red Hat EL 7.1

Transparent Huge Pages enabled with:

```
echo always /sys/kernel/mm/transparent_hugepage/enabled
```

runspec command invoked through numactl i.e.:

```
numactl --intel=on --m=0 --l=0 --s=0 --e=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:

```
icc -x86_64
```

C++ benchmarks:

```
icpc -x86_64
```

Fortran benchmarks:

```
ifort -x86_64
```

Continued on next page



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Base Compiler Invocation (Continued)

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 -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



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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

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.splix3: 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

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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) -prof-use(pass 2) -unroll4
Continued on next page



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Peak Optimization Flags (Continued)

453.povray (continued):
-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) -unroll2
-inline-level=0 -scalar-r

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) -unroll2
-inline-level=0 -opt-prefetch -parallel

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) -inline-alloc
-opt-alloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.gromacs-ADM: basepeak = yes

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-ic16.0-official-linux64.html>

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



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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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