# SPEC® CFP2006 Result

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## Huawei

Huawei CH220 V3 (Intel Xeon E5-2643 v4)

SPECfp®_rate2006 = NC

SPECfp_rate_base2006 = NC

**CPU2006 license:** 3175
**Test sponsor:** Huawei
**Tested by:** Huawei

**Test date:** May-2016
**Hardware Availability:** Mar-2016
**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 ru up policy on <a href="https://www.spec.org/osg/policy.html#AppendixC">gener**

| 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 |
| [illegible] |
| 470.lbm |
| 481.wrf |
| 482.sphinx3 |

Non-Compliant

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### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2643 v4 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.70 GHz |
| CPU MHz: | 3400 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 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: | 20 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC4-2400T-) |
| Disk Subsystem: | 1 x 1000 GB SATA, 7200 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 7.2 (Maipo) 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 |
| Auto 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 | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 416.gamess | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 433.milc | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 434.zeusmp | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 435.gromacs | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 436.cactusADM | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 437.leslie3d | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 444.namd | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 447.dealII | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 450.soplex | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 453.povray | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 454.calculix | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 459.GemsFDTD | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 465.tonto | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 470.lbm | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 481.wrf | 24 | NC | NC | NC | NC | NC | NC | 24 | NC | NC | NC | NC | NC | NC |
| 482.sphinx3 | 24 | NC | NC | NC | NC | NC | NC | 24 | 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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## Platform Notes

```
BIOS configuration:
Set Power Efficiency Mode to Peformance
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable
Set Hyper-Threading to enabled
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue May  3 21:41:23 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 E5-2643 v4 @ 3.40GHz
      2 "physical id"s (chips)
      24 "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 : 6
      siblings  : 12
      physical 0: cores 0 1 2 3 6 7
      physical 1: cores 0 1 2 3 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       263568992 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
```

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## Platform Notes (Continued)

```
uname -a:
   Linux localhost.localdomain 3.10.0-327.el  x86_64 #  SMP  hu Oct 29 17:29:29
   EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 3 12:54

SPEC is set to: /spec16
   Filesystem     Type  Size  Used A ail Us  % Mounted on
   /dev/sda2      ext4  850G   31G   76G   4  /
Additional information from  midecode

   Warning: Use caution wh n you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
   determined", but the in nt 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 M393A2G40EB  CRC 16 GB 1 rank 2400 MHz
   8x Samsung M393A  EB1-CRC 16 GB 2 rank 2400 MHz

(End of data fro  sysinfo  ogram)
```

## General Notes

```
Enviro ment  ariable  set by runspec before the start of the run:
LD_LIBR RY_PA  = "/ pec16/libs/32:/spec16/libs/64:/spec16/sh"

Binaries c mpiled on a system with 1x Intel Core i5-4670K CPU + 32GB
      RedHat EL 7.1
Transparent Huge Pages enabled with:
ech  always > /sys/kernel/mm/transparent_hugepage/enabled
File ystem page cache cleared with:
echo 1>      /proc/sys/vm/drop_caches
runspec  ommand 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.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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Continued on next page

**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 ru up policy on <a href="https://www.spec.org/osg/policy.html#AppendixC">gener**

Non-Compliant

## Base Optimization Flags (Continued)

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p3
-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:
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

Continued on next page

**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 ru up policy on <a href="https://www.spec.org/osg/policy.html#AppendixC">gener**

Non-Compliant

## Peak Optimization Flags (Continued)

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.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) -opt-mem-layout-trans=3(pass 2) -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) -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) -unroll4 -auto -inline-calloc -opt-malloc-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

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## Peak Optimization Flags (Continued)

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-ic[illegible]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-[illegible]0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-[illegible]form-Settings-BDW-V1.0.xml

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