# SPEC® CFP2006 Result
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## Huawei

Huawei CH220 V3 (Intel Xeon E5-2603 v4)

SPECfp®_rate2006 = NC

SPECfp_rate_base2006 = NC

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

**Test date:** Jun-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

465.tonto

470.lbm

481.wrf

482.sphinx3

Non-Compliant

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## Hardware

CPU Name: Intel Xeon E5-2603 v4
CPU Characteristics:
CPU MHz: 1700
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400 R, running at 1866 MHz)
Disk Subsystem: 1 x 1000 GB SATA, 7200rpm
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 | Copies | Base Seconds | Base Ratio | Base Seconds | Base Ratio | Base Seconds | Base Ratio | Copies | Peak Seconds | Peak Ratio | Peak Seconds | Peak Ratio | Peak Seconds | Peak Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 410.bwaves | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 416.gamess | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 433.milc | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 434.zeusmp | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 435.gromacs | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 436.cactusADM | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 437.leslie3d | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 444.namd | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 447.dealII | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 450.soplex | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 453.povray | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 454.calculix | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 459.GemsFDTD | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 465.tonto | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 470.lbm | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 481.wrf | 12 | NC | NC | NC | NC | NC | NC | 12 | NC | NC | NC | NC | NC | NC |
| 482.sphinx3 | 12 | NC | NC | NC | NC | NC | NC | 12 | 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
    Sysinfo program /spec16/config/sysinfo.rev 14
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb866 5a285932ceab81e28219e1
    running on localhost.localdomain Fri Jun  3 10 21:03 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 E5-2603 v4 @ 1.70GHz
          2 "physical id"s (chips)
          12 "processors"
       cores, siblings (Caution:      g these is hw and system dependent.  The
       following excerpts from /proc/cpuinfo might not be reliable.  Use with
       caution.)
          cpu cores : 6
          siblings  : 6
          physical 0: cores  1 2 3 4 5
          physical 1: cores 0   2 3 4 5
       cache size : 153   KB

    From /proc/meminfo
       MemTotal:     63570480 kB
       HugePages_Total:      0
       Hugepagesize:      2048 kB

    From /etc/*release* /etc/*version*

        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.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 3 06:55

SPEC is set to: /spec16
   Filesystem      Type   Size  Used Avail  % Mounted on
   /dev/sda2       ext4   850G  126G   82G  1% /
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. 3.09 02/26/2016
   Memory:
    8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz, configured at 1867 MHz
    8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 1867 MHz

  (End of data from sysinfo program)
```

## General Notes

```
Environment variables 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
 memory using RedHat EL 7.1
       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>
```

## Base Compiler Invocation

C benchmarks:
```
    icc   -m64
```

Continued on next page

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## Base Compiler Invocation (Continued)

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_LP
    416.gamess: -DSPEC_CPU_LP6
      433.milc: -DSPEC_CPU_LP64
    434.zeusmp: -DSPEC_CPU_LP64
   435.gromacs: -DSPEC_CPU_LP64 -nofor_main
  436.cactusADM: -DSPEC_CPU_LP6  -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
```

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)

```
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

     482.sphinx3: basepeak = yes

C++ benchmarks:
```

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## Peak Optimization Flags (Continued)

```
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-ilp3

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

436.cactusADM: basepeak = yes
```

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## Peak Optimization Flags (Continued)

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

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 Fri Oct 21 17:44:01 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 August 2016.