Huawei
Huawei XH622 V3 (Intel Xeon E5-2650L v4)

SPECfp®2006 = NC
SPECfp_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Mar-2016
Tested by: Huawei
Hardware Availability: Mar-2016
Software Availability: Mar-2016

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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.GemsFDID
465.tonto
470.lbm
481.wrf
482.sphinx3

SPEC® CFP2006 Result
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Non-Compliant
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**Hardware**

- CPU Name: Intel Xeon E5-2650L v4  
- CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
- CPU MHz: 1700  
- FPU: Integrated  
- CPU(s) enabled: 28 cores, 2 chips, 14 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: 35 MB I+D on chip per chip  
- Other Cache: None  
- Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)  
- Disk Subsystem: 1 x 1000 GB SATA, 7200rpm  
- Other Hardware: None

**Software**

- Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 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  
- Auto Parallel: Yes  
- File System: ext4  
- 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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
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<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
</tr>
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</tr>
</tbody>
</table>

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

### Operating System Notes

Stack size set 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 Feb 26 05:35:07 2014
Continued on next page
Huawei
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<table>
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Platform Notes (Continued)

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 E5-2650L v4 @ 1.70GHz
- 2 "physical id"s (chips)
- 28 "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: 14
  - siblings: 14
  - physical 0: cores 0 2 3 4 5 6 8 9 10 12 13 14
  - physical 1: cores 0 1 3 4 5 8 9 10 11 12 13 14
- cache size: 35840 KB

From /proc/meminfo
- MemTotal: 263569784 kB
- HugePages_Total: 0
- Hugepagesize: 2048 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)"
  - 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

SPEC is set to: /spec16

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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.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
  ```

Continued on next page
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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
C benchmarks:
433.milc: basepeak = yes
701.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
Continued on next page
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Peak Optimization Flags (Continued)

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xCORE-AVX2(pass 2) -prof-gen:threads=5(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:threads=1(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: -xCORE-AVX2(pass 2) -prof-gen:threads=1(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:threads=1(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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## SPEC CFP2006 Result

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**Tested by:** Huawei

### 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/Intel-ic16.0_official-linux64.html)
- [http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.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/Intel-ic16.0_official-linux64.xml)
- [http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.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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