## SPEC® CFP2006 Result

### Huawei
Huawei XH622 V3 (Intel Xeon E5-2695 v4)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
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</thead>
<tbody>
<tr>
<td>107</td>
<td>102</td>
</tr>
</tbody>
</table>

### 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 L + 32 KB D on chip per core
- **Secondary Cache:** 256 KB K+D on chip per core

### Software
- **Operating System:** SUSE Linux Enterprise Server 12 SP1
  3.12.49-11-default
- **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:** xfs
- **System State:** Run level 3 (multi-user)

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

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### Test Scores

<table>
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<th>Benchmark</th>
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</tr>
<tr>
<td>416.gamess</td>
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<tr>
<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>435.gromacs</td>
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<tr>
<td>436.cactusADM</td>
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<td>437.leslie3d</td>
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<td>444.namd</td>
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<td>459.GemsFDTS</td>
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### Test Scores Graph

- **Graph Labels:** SPECfp®2006, SPECfp_base2006
- **Graph Values:**
  - SPECfp®2006 = 107
  - SPECfp_base2006 = 102

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Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Huawei XH622 V3 (Intel Xeon E5-2695 v4)

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

L3 Cache: 45 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 1000GB SATA, 7200 RPM
Other Hardware: None
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

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<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
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<th>Base Seconds</th>
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<td>65.6</td>
</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 $ $e3fbb8667b5a285932ceab81e28219e1$
runtime on linux-6392 Mon Oct 24 23:42:00 2016

This section contains SUT (System Under Test) info as seen by
Continued on next page
Huawei

Huawei XH622 V3 (Intel Xeon E5-2695 v4)

**SPECfp2006 =** 107
**SPECfp_base2006 =** 102

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

CPU2006 license: 3175
Test date: Oct-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

**Platform Notes (Continued)**

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 E5-2695 v4 @ 2.10GHz
- 2 "physical id"s (chips)
- 36 "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: 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: 264080128 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
- SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*
- SuSE-release:
  - SUSE Linux Enterprise Server 12 (x86_64)
  - VERSION = 12
  - PATCHLEVEL = 1
  - # This file is deprecated and will be removed in a future service pack or release.
    # Please check /etc/os-release for details about this release.
- os-release:
  - NAME="SLES"
  - VERSION="12-SP1"
  - VERSION_ID="12.1"
  - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
  - ID="sles"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
  (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 24 18:44 last=5

SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/md126p2 xfs 455G 15G 441G 4% /

Additional information from dmidecode:

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Huawei

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Platform Notes (Continued)

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. 3.31 08/22/2016
Memory:
8x Micron 36ASF4G72PZ-2G3A1 32 GB 2 rank 2400 MHz
8x NO DIMM NO DIMM

(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 = "36"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
umactl --interleave=all runspec <etc>
The Huawei XH622 V3 and Huawei XH628 V3 and Huawei XH620 V3 are electronically equivalent.
The results have been measured on a Huawei XH620 V3 model.

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

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### Huawei XH622 V3 (Intel Xeon E5-2695 v4)

| SPECfp2006 | 107 |
| SPECfp_base2006 | 102 |

**CPU2006 license:** 3175  
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#### Base Portability Flags (Continued)

- 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

#### 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
Huawei XH622 V3 (Intel Xeon E5-2695 v4)

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**Peak Portability Flags**

Same as Base Portability Flags

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**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:threadsafepass 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:threadsafepass 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:threadsafepass 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:threadsafepass 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:threadsafepass 1`  
  `-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`  
  `-par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc`

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## Huawei

**Huawei XH622 V3 (Intel Xeon E5-2695 v4)**

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### Peak Optimization Flags (Continued)

465.tonto (continued):  
```
-optimizations=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
- **481.wrf:** basepeak = yes

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The flags files that were used to format this result can be browsed at:


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

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