## Huawei

**Huawei XH622 V3 (Intel Xeon E5-2609 v3)**

**SPECfp®2006 =** 64.1  
**SPECfp_base2006 =** 62.0

**CPU2006 license:** 3175  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Test date:** Mar-2015  
**Hardware Availability:** Sep-2014  
**Software Availability:** Sep-2014

### Hardware

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
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<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2609 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>1900</td>
</tr>
<tr>
<td>CPU MHZ</td>
<td>1900</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>12 cores, 2 chips, 6 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1,2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
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</table>

### Software

<table>
<thead>
<tr>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</td>
</tr>
<tr>
<td>Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel: Yes</td>
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<tr>
<td>File System: ext4</td>
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**Continued on next page**
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L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</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
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Wed Mar 11 13:42:00 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page
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Test date: Mar-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2609 v3 @ 1.90GHz
   2 "physical id"s (chips)
   12 "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 : 6
   physical 0: cores 0 1 2 3 4 5
   physical 1: cores 0 1 2 3 4 5
   cache size : 15360 KB

From /proc/meminfo
   MemTotal: 263721952 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)"
      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 11 13:37

   SPEC is set to: /spec15
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/sda1 ext4 458G 38G 397G 9% /

   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. 1.17 09/03/2014
   Memory:

Continued on next page
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Platform Notes (Continued)

8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1600 MHz
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1600 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 = ":/spec15/libs/32:/spec15/libs/64:/spec15/sh"
OMP_NUM_THREADS = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
The Huawei XH622 V3 and Huawei XH628 V3 are electronically equivalent.
The results have been measured on a Huawei XH622 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
416.gamess:  -DSPEC_CPU_LP64
  433.milc:    -DSPEC_CPU_LP64
  434.zeusmp:  -DSPEC_CPU_LP64 -nofor_main
  435.gromacs: -DSPEC_CPU_LP64 -nofor_main
  436.cactusADM:  -DSPEC_CPU_LP64 -nofor_main
  437.leslie3d:  -DSPEC_CPU_LP64
  444.namd:    -DSPEC_CPU_LP64
## SPEC CFP2006 Result

### Huawei

**Huawei XH622 V3 (Intel Xeon E5-2609 v3)**

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>64.1</th>
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<tr>
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**CPU2006 license:** 3175  
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### Base Portability Flags (Continued)

<table>
<thead>
<tr>
<th>Base Portability Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>447.dealII: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>450.soplex: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>453.povray: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>454.calculix: -DSPEC_CPU_LP64 -nofor_main</td>
</tr>
<tr>
<td>459.GemsFDTD: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>465.tonto: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>470.lbm: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx3: -DSPEC_CPU_LP64</td>
</tr>
</tbody>
</table>

### 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

### Peak Portability Flags

Same as Base Portability Flags
Huawei XH622 V3 (Intel Xeon E5-2609 v3)

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SPECfp_base2006 = 62.0

CPU2006 license: 3175
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Hardware Availability: Sep-2014
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Software Availability: Sep-2014

### Peak Optimization Flags

**C benchmarks:**

433.milc: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

**C++ benchmarks:**

444.namd: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div (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 (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2) -unroll4
-ansi-alias

**Fortran benchmarks:**

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div (pass 2) -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 (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div (pass 2) -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

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Continued on next page
Huawei

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Peak Optimization Flags (Continued)

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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.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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