Huawei XH622 V3 (Intel Xeon E5-2699 v4)  

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<th>NC</th>
<th>SPECfp_base2006 =</th>
<th>NC</th>
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CPU2006 license: 3175  
Test sponsor: Huawei  
Test date: Apr-2016  
Hardware Availability: Mar-2016  
Tested by: Huawei  
Software Availability: Aug-2015

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by [SPEC CPU rule 1.3.2](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) and the SPEC Open Systems Group policy on [general availability](https://www.spec.org/osg/policy.html#AppendixC).
Huawei

Huawei XH622 V3 (Intel Xeon E5-2699 v4)

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<table>
<thead>
<tr>
<th><strong>Hardware</strong></th>
<th><strong>Software</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong> Intel Xeon E5-2699 v4</td>
<td><strong>Operating System:</strong> Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong> Intel Turbo Boost Technology up to 3.60 GHz</td>
<td><strong>Compiler:</strong> 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</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong> 2200</td>
<td><strong>Auto Parallel:</strong> Yes</td>
</tr>
<tr>
<td><strong>FPU:</strong> Integrated</td>
<td><strong>File System:</strong> xfs</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong> 44 cores, 2 chips, 22 cores/chip</td>
<td><strong>System State:</strong> Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong> 1,2 chip</td>
<td><strong>Bit Pointers:</strong> 64-bit</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong> 32 KB I + 32 KB D on chip per core</td>
<td><strong>Peak Pointers:</strong> 32/64-bit</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong> 256 KB I+D on chip per core</td>
<td><strong>Other Software:</strong> None</td>
</tr>
<tr>
<td><strong>L3 Cache:</strong> 55 MB I+D on chip per chip</td>
<td><strong>Other Hardware:</strong> None</td>
</tr>
<tr>
<td><strong>Other Cache:</strong> None</td>
<td><strong>Memory:</strong> 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)</td>
</tr>
<tr>
<td><strong>Disk Subsystem:</strong> 1 x 500 GB SATA, 7200 RPM</td>
<td><strong>Disk Subsystem:</strong> 1 x 500 GB SATA, 7200 RPM</td>
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Huawei XH622 V3 (Intel Xeon E5-2699 v4) SPECfp2006 = NC

SPECfp_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei

Test date: Apr-2016
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Results Table

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<tr>
<th>Benchmark</th>
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<td></td>
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<td>NC</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>NC</td>
<td>NC</td>
</tr>
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<td>435.gromacs</td>
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</tr>
<tr>
<td>482.sphinx3</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

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

Operating System Notes

Non-Compliant

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 Thu Apr 7 05:29:46 2016

Platform Notes

Non-Compliant
**SPEC CFP2006 Result**

**Huawei**

Huawei XH622 V3 (Intel Xeon E5-2699 v4)

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**CPU2006 license:** 3175  
**Test date:** Apr-2016  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Hardware Availability:** Mar-2016  
**Software Availability:** Aug-2015

**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 E5-2699 v4 @ 2.20GHz
- 2 "physical id"s (chips)
- 44 "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 : 22
- siblings : 22
- physical 0: cores 0 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
- physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
- cache size : 56320 KB

From /proc/meminfo

- MemTotal:       263567928 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\"
  - Red Hat 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 Apr 7 05:28

**SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by <a href="http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2">SPEC CPU rule 1.3.2</a> and the SPEC Open Systems Group policy on <a href="https://www.spec.org/osg/policy.html#AppendixC">general availability</a>.**
SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Platform Notes (Continued)

```
SPEC is set to: /spec16
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda2      xfs   449G   13G  437G   3% /
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 DMBIOS* standard.

BIOS Insyde Corp. 3.12 03/03/2016
Memory:
  8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz
  8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 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 = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"
OMP_NUM_THREADS = "44"

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.:
runspec --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.

C benchmarks:
icc  -m64

Base Compiler Invocation

Continued on next page
Huawei

Huawei XH622 V3 (Intel Xeon E5-2699 v4)

**SPECfp2006** = **NC**

**SPECfp_base2006** = **NC**

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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

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<tr>
<td>481.wrf</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
</tbody>
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### 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

---

Continued on next page
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---

**Base Optimization Flags** (Continued)

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

**Peak Optimization Flags**

C benchmarks:
- 433.milc: basepeak = yes
- 470.lb0: basepeak = yes
- 482.sphinx3: basepeak = yes

C++ benchmarks:

---

Non-compliant
Huawei XH622 V3 (Intel Xeon E5-2699 v4) SPECfp2006 = NC SPECfp_base2006 = NC

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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) -prof-use(pass 2) -no-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) -prof-use(pass 2) -unroll14 -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) -unroll12 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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) -unroll12 -inline-level=0 -opt-prefetch -parallel

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) -inline-calloc -opt-malloc-options=3 -auto -unroll14

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: 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 available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Peak Optimization Flags (Continued)

454.calculix: -xCORE-AVX2 -ipo -03 -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-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

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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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