Huawei XH628 V3 (Intel Xeon E5-2623 v3)

SPECfp®2006 = 96.4
SPECfp_base2006 = 92.9

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

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Huawei

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L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 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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<td>416.gamess</td>
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<td>433.milc</td>
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<td>68.5</td>
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<td>450.soplex</td>
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<td>453.povray</td>
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<tr>
<td>454.calculix</td>
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<tr>
<td>459.GemsFDTD</td>
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<td>163</td>
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<tr>
<td>465.tonto</td>
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<td>45.2</td>
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<td>45.1</td>
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<td>45.2</td>
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<tr>
<td>470.lbm</td>
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<td>33.8</td>
<td>407</td>
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<tr>
<td>481.wrf</td>
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<td>88.5</td>
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<td>89.0</td>
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<td>482.sphinx3</td>
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<td>81.1</td>
<td>239</td>
<td>81.6</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 Intel Hyper-threading Technology to Disable
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Mon Mar 23 07:59:38 2015

This section contains SUT (System Under Test) info as seen by
Huawei

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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 E5-2623 v3 @ 3.00GHz
  2 "physical id"s (chips)
  8 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
  cpu cores: 4
  siblings: 4
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
  cache size: 10240 KB

From /proc/meminfo
  MemTotal: 263722416 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 23 05:38

SPEC is set to: /spec15
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 443G 165G 256G 40% /

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 Insysde Corp. 1.17 09/03/2014
Continued on next page
Huawei
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Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

Memory:
8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1867 MHz
8x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1867 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 = "8"

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 XH628 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
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64

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SPEC CFP2006 Result

Huawei

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Base Portability Flags (Continued)

- 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
- 459.GemsFDTD: -DSPEC_CPU_LP64
- 465.tonto: -DSPEC_CPU_LP64
- 470.lbm: -DSPEC_CPU_LP64
- 481.wrf: -DSPEC_CPU_LP64
- 482.sphinx3: -DSPEC_CPU_LP64
- 444.namd: -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
- 459.GemsFDTD: -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

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**

Huawei XH628 V3 (Intel Xeon E5-2623 v3)  

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

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**Peak Portability Flags**

Same as Base Portability Flags

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**Peak Optimization Flags**

C benchmarks:

- 433.milc: \(-\text{xCORE-AVX2}(\text{pass }2)\) \(-\text{prof-gen}(\text{pass }1)\) \(-\text{ipo}(\text{pass }2)\) \(-\text{O3}(\text{pass }2)\) \(-\text{no-prec-div}(\text{pass }2)\) \(-\text{prof-use}(\text{pass }2)\) \(-\text{auto-ilp32}\) \(-\text{ansi-alias}\)
- 470.lbm: basepeak = yes
- 482.sphinx3: basepeak = yes

C++ benchmarks:

- 444.namd: \(-\text{xCORE-AVX2}(\text{pass }2)\) \(-\text{prof-gen}(\text{pass }1)\) \(-\text{ipo}(\text{pass }2)\) \(-\text{O3}(\text{pass }2)\) \(-\text{no-prec-div}(\text{pass }2)\) \(-\text{prof-use}(\text{pass }2)\) \(-\text{fno-alias}\) \(-\text{auto-ilp32}\)
- 447.dealII: basepeak = yes
- 450.soplex: basepeak = yes
- 453.povray: \(-\text{xCORE-AVX2}(\text{pass }2)\) \(-\text{prof-gen}(\text{pass }1)\) \(-\text{ipo}(\text{pass }2)\) \(-\text{O3}(\text{pass }2)\) \(-\text{no-prec-div}(\text{pass }2)\) \(-\text{prof-use}(\text{pass }2)\) \(-\text{unroll}4\) \(-\text{ansi-alias}\)

Fortran benchmarks:

- 410.bwaves: basepeak = yes
- 416.gamess: \(-\text{xCORE-AVX2}(\text{pass }2)\) \(-\text{prof-gen}(\text{pass }1)\) \(-\text{ipo}(\text{pass }2)\) \(-\text{O3}(\text{pass }2)\) \(-\text{no-prec-div}(\text{pass }2)\) \(-\text{prof-use}(\text{pass }2)\) \(-\text{unroll}2\) \(-\text{inline-level=0}\) \(-\text{scalar-rep}\)
- 434.zeusmp: basepeak = yes
- 437.leslie3d: basepeak = yes
- 459.GemsFDTD: \(-\text{xCORE-AVX2}(\text{pass }2)\) \(-\text{prof-gen}(\text{pass }1)\) \(-\text{ipo}(\text{pass }2)\) \(-\text{O3}(\text{pass }2)\) \(-\text{no-prec-div}(\text{pass }2)\) \(-\text{prof-use}(\text{pass }2)\) \(-\text{unroll}2\) \(-\text{inline-level=0}\) \(-\text{opt-prefetch}\) \(-\text{parallel}\)
- 465.tonto: \(-\text{xCORE-AVX2}(\text{pass }2)\) \(-\text{prof-gen}(\text{pass }1)\) \(-\text{ipo}(\text{pass }2)\) \(-\text{O3}(\text{pass }2)\) \(-\text{no-prec-div}(\text{pass }2)\) \(-\text{prof-use}(\text{pass }2)\) \(-\text{inline-calloc}\) \(-\text{opt-malloc-options=3}\) \(-\text{auto}\) \(-\text{unroll}4\)

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## Huawei

### Huawei XH628 V3 (Intel Xeon E5-2623 v3)

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</table>

### Peak Optimization Flags (Continued)

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

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