### Huawei

Huawei XH620 V3 (Intel Xeon E5-2630L v3)

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

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**Huawei XH620 V3**

```
SPECfp®2006 = 93.4
SPECfp_base2006 = 88.0
```

**Hardware**

- **CPU Name:** Intel Xeon E5-2630L v3  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.90 GHz  
- **CPU MHz:** 1800  
- **FPU:** Integrated  
- **CPU(s) enabled:** 16 cores, 2 chips, 8 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

**Software**

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

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**SPECfp®2006 = 93.4**

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L3 Cache: 20 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>
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<td>58.9</td>
<td>332</td>
<td>58.6</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
Set Intel Hyper-threading Technology to Disable
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Wed Jul 1 06:18:26 2015

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

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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 E5-2630L v3 @ 1.80GHz
2 "physical id"s (chips)
16 "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 : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 263579376 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 Jul 1 05:18

SPEC is set to: /spec15
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 443G 8.7G 411G 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 SMBIOS" standard.

BIOS InSyde Corp. 1.36 04/09/2015
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Tested by: Huawei

Test date: Jul-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)
Memory:
8x Micron 36ASF2G7ZPZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1867 MHz
8x Micron 36ASF2G7ZPZ-2G1A2 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 = "16"

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>

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.rezrmp: −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

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Base Portability Flags (Continued)

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

Peak Portability Flags

Same as Base Portability Flags
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| Hardware Availability: | Sep-2014 |
| Tested by: | Huawei |
| Software Availability: | Sep-2014 |

### Peak Optimization Flags

#### C benchmarks:

- `433.milc`: `-xCORE-AVX2` (pass 2) `-prof-gen` (pass 1) `-ipo` (pass 2) `-O3` (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) `-O3` (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) `-O3` (pass 2) `-no-prec-div` (pass 2) `-prof-use` (pass 2) `-unroll14` `-ansi-alias`

#### Fortran benchmarks:

- `410.bwaves`: `basepeak = yes`

- `416.gamess`: `-xCORE-AVX2` (pass 2) `-prof-gen` (pass 1) `-ipo` (pass 2) `-O3` (pass 2) `-no-prec-div` (pass 2) `-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` (pass 1) `-ipo` (pass 2) `-O3` (pass 2) `-no-prec-div` (pass 2) `-prof-use` (pass 2) `-unroll12` `-inline-level=0` `-opt-prefetch` `-parallel`

- `465.tonto`: `-xCORE-AVX2` (pass 2) `-prof-gen` (pass 1) `-ipo` (pass 2) `-O3` (pass 2) `-no-prec-div` (pass 2) `-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`

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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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