Huawei

Huawei XH620 V3 (Intel Xeon E5-2620 v3)

SPECfp®2006 = 98.2
SPECfp_base2006 = 93.2

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

CPU Name: Intel Xeon E5-2620 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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

Hardware

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

Software
Huawei

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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 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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<tr>
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<td>383</td>
<td>34.4</td>
<td>395</td>
<td>34.5</td>
<td>394</td>
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<td>69.9</td>
<td>281</td>
<td>69.4</td>
<td>284</td>
<td>68.7</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 Intel HT Technology to Disable
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue Jun 30 14:46:23 2015

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Huawei
Huawei XH620 V3 (Intel Xeon E5-2620 v3)

**SPECfp2006 = 98.2**
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**CPU2006 license:** 3175

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**Tested by:** Huawei

**Test date:** Jun-2015

**Test sponsor:** Huawei

**Hardware Availability:** Sep-2014

**Software Availability:** Sep-2014

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**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 E5-2620 v3 @ 2.40GHz
- 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: 263579840 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From `/etc/*release* /etc/*/version*`

- 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 Jun 30 14:33

`SPEC is set to:` /spec15

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 443G 7.0G 413G 2% /

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.

Continued on next page
Huawei

Huawei XH620 V3 (Intel Xeon E5-2620 v3)

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

Platform Notes (Continued)

BIOS Insyde Corp. 1.36 04/09/2015
Memory:
8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1867 MHz
8x Micron 36ASF2G72PZ-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 = "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>

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.mlmc:  −DSPEC_CPU_LP64
434.zesmp:  −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  −nofor_main
447.dealII:  −DSPEC_CPU_LP64

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## Huawei XH620 V3 (Intel Xeon E5-2620 v3)

### SPEC CFP2006 Result

| SPECfp2006 | 98.2 |
| SPECfp_base2006 | 93.2 |

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

### Base Portability Flags (Continued)

- 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`

### Peak Portability Flags

Same as Base Portability Flags
Peak Optimization Flags

C benchmarks:

432.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) -unroll14
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 -unroll14

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes
SPEC CFP2006 Result

Huawei

Huawei XH620 V3 (Intel Xeon E5-2620 v3)

| SPECfp2006 = | 98.2 |
| SPECfp_base2006 = | 93.2 |

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

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

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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