Huawei

Huawei XH628 V3 (Intel Xeon E5-2603 v4)

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Non-Compliant
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### Hardware

| CPU Name: | Intel Xeon E5-2603 v4 |
| CPU Characteristics: | |
| CPU MHz: | 1700 |
| 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 |
| L3 Cache: | 15 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz) |
| Disk Subsystem: | 1 x 500 GB SATA,7200 RPM |
| Other Hardware: | None |

### Software

| Operating System: | Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64 |
| Compiler: | C/C++-version 16.0.0.101 of Intel C++ Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | xfs |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | None |
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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 E5-2603 v4 @ 1.70GHz
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 2 3 4 5
physical 1: cores 0 2 3 4 5
cache size : 15360 KB

From /proc/meminfo
MemTotal: 263571640 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 14 06:54

SPEC is set to: /spec16

filesystem type size used avail use% mounted on
Continued on next page
### SPEC CFP2006 Result

**Huawei**

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---

**Platform Notes (Continued)**

```markdown
/dev/sda3      xfs   443G   12G  431G   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. 3.09 02/22/2016  
Memory:  
- 8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz, configured at 1867 MHz  
- 8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 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** = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"  
- **OMP_NUM_THREADS** = "12"

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  
runcmd command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>  
The Huawei XH622 V3 and Huawei XH628 V3 and Huawei XH620 V3 are electronically equivalent.

---

**Base Compiler Invocation**

C benchmarks:  
- `icc` -m64

C++ benchmarks:  
- `icpc` -m64

---

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**Base Compiler Invocation (Continued)**

Fortran benchmarks:
- ifort -m64

Benchmarks using both Fortran and C:
- icc -m64 ifort -m64

**Base Portability Flags**

<table>
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<tr>
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<td>416.gamess</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>433.milc</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>444.namd</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>447.dealII</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>450.soplex</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>453.povray</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>456.calculix</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
</tr>
<tr>
<td>459.GemsFD</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>465.tonto</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>470.lbm</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>481.wrf</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx</td>
<td>-DSPEC_CPU_LP64</td>
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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

Fortran benchmarks:
- -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Continued on next page
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Base Optimization Flags (Continued)

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.mlcl: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:
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) -fno-alias
-auto-ilp32

Continued on next page
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Peak Optimization Flags (Continued)

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) -unroll4
            -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) -unroll2
            -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) -unroll2
              -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 -unroll4

Benchmarks using both Fortran and C:
435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-1lp32 -ansi-alias

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Peak Optimization Flags (Continued)

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 other inquiries, please contact webmaster@spec.org.

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