# SPEC® CFP2006 Result

**Huawei**

Huawei XH620 V3 (Intel Xeon E5-2643 v4)

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

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Non-Compliant
**Huawei**

Huawei XH620 V3 (Intel Xeon E5-2643 v4)

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**CPU Name:** Intel Xeon E5-2643 v4  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz  
**CPU MHz:** 3400  
**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:** 20 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)  
**Disk Subsystem:** 1 x 1000 GB SATA, 7200rpm  
**Other Hardware:** None

**Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo)  
**Compiler:** 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  
**Auto Parallel:** Yes  
**File System:** ext4  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** 32/64-bit  
**Other Software:** None

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Results Table

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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 Hyper-Threading to Disable
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Mon Feb 3 10:56:02 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

```plaintext
model name : Intel(R) Xeon(R) CPU E5-2643 v4 @ 3.40GHz
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 6 7
physical 1: cores 0 1 2 3 6 7
cache size : 20480 KB
```

From /proc/meminfo

```plaintext
MemTotal: 263571640 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

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

```plaintext
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 Feb 3 10:55
SPEC is set to: /spec16
```

Continued on next page
Huawei XH620 V3 (Intel Xeon E5-2643 v4)

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Platform Notes (Continued)

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 913G 108G 759G 13% /

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. 3.12 03/03/2016
Memory:
8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz

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
runspec 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.
The results have been measured on a Huawei XH620 V3 model.

C benchmarks:
  icc -m64

C++ benchmarks:
icpc -m64

Base Compiler Invocation

Continued on next page
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**Base Compiler Invocation (Continued)**

**Base Portability Flags**

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<td>482.sphinx3</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

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SPEC CFP2006 Result

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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.milc: basepeak = yes
570.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
Huawei

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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-ilp32 -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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Originally published on 7 April 2016.