Huawei

Huawei RH2288 V3 (Intel Xeon E5-2683 v3)

SPECfp®2006 = 98.6
SPECfp_base2006 = 94.6

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

Hardware

CPU Name: Intel Xeon E5-2683 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 28 cores, 2 chips, 14 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) 3.10.0-123.el7.x86_64
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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L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
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>
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<td>304</td>
<td>64.1</td>
<td>306</td>
<td>63.6</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 $e3fbb8667b5a285932c98e28219e1
running on localhost.localdomain Fri Mar 20 11:40:39 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: Continued on next page
Huawei RH2288 V3 (Intel Xeon E5-2683 v3)

SPECfp2006 = 98.6
SPECfp_base2006 = 94.6

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

Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2683 v3 @ 2.00GHz
  2 "physical id"s (chips)
  28 "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 : 14
  siblings : 14
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  cache size : 35840 KB

From /proc/meminfo
  MemTotal: 263720096 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 20 05:49

  SPEC is set to: /spec15
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda1 ext4 458G 38G 397G 9% /

  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. 1.17 09/03/2014
  Memory:

Continued on next page
Huawei

Huawei RH2288 V3 (Intel Xeon E5-2683 v3)

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Test sponsor: Huawei
Tested by: Huawei

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

Platform Notes (Continued)

8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 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 = "28"

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:
icc -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 -nofor_main
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64 -nofor_main
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64

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## SPEC CFP2006 Result

### Huawei

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

**SPECfp2006 =** 98.6  
**SPECfp_base2006 =** 94.6

**Test date:** Mar-2015  
**Hardware Availability:** Sep-2014  
**Software Availability:** Sep-2014

### Base Portability Flags (Continued)

- 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
Huawei

Huawei RH2288 V3 (Intel Xeon E5-2683 v3)

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Test sponsor: Huawei
Tested by: Huawei

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

Peak Optimization Flags

C benchmarks:

433.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) -unroll4
-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 -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

Continued on next page
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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 other inquiries, please contact webmaster@spec.org.

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