Huawei

Huawei CH121 V3 (Intel Xeon E5-2618L v3)

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

SPECf®2006 = 104
SPECfp_base2006 = 98.1

Hardware
CPU Name: Intel Xeon E5-2618L v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz: 2300
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) 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
SPEC CFP2006 Result

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

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

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 300 GB SAS, 10000 RPM
Other Hardware: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Seconds Peak</th>
<th>Seconds Base</th>
<th>Seconds Peak</th>
<th>Seconds Base</th>
<th>Seconds Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>bwaves</td>
<td>29.9</td>
<td><strong>30.2</strong></td>
<td>31.3</td>
<td>434</td>
<td>29.9</td>
<td><strong>30.2</strong></td>
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<tr>
<td>gamess</td>
<td>550</td>
<td><strong>551</strong></td>
<td>553</td>
<td>35.4</td>
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<td>milc</td>
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<td>130</td>
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<td>129</td>
<td><strong>70.9</strong></td>
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<td>cactusADM</td>
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<td><strong>19.1</strong></td>
<td>19.1</td>
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<td>19.2</td>
<td><strong>19.1</strong></td>
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<td>Leslie3d</td>
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<td><strong>36.3</strong></td>
<td>37.0</td>
<td>56.0</td>
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<td>namd</td>
<td>279</td>
<td><strong>279</strong></td>
<td>279</td>
<td>28.8</td>
<td>271</td>
<td><strong>28.8</strong></td>
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<td>dealII</td>
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<td>203</td>
<td>56.3</td>
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<td>soplex</td>
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<td>calcull</td>
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<td>52.0</td>
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<td>GemsFDTD</td>
<td>52.7</td>
<td><strong>51.6</strong></td>
<td>51.3</td>
<td>207</td>
<td>45.3</td>
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<tr>
<td>tonto</td>
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<td>23.0</td>
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<td><strong>23.7</strong></td>
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<tr>
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<td>125</td>
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<td>127</td>
<td>87.9</td>
<td>125</td>
<td><strong>126</strong></td>
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<tr>
<td>sphinx3</td>
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<td><strong>284</strong></td>
<td>285</td>
<td>68.6</td>
<td>285</td>
<td><strong>68.6</strong></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 Hyper-Threading to Disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Jan 16 09:20:24 2015

Continued on next page
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SPECfp2006 = 104
SPECfp_base2006 = 98.1

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 E5-2618L v3 @ 2.30GHz
 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:       263721480 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 Jan 16 09:18

SPEC is set to: /spec15
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb1 ext4 237G 11G 214G 5% /

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
Platform Notes (Continued)

BIOS Insyde Corp. 1.19 10/10/2014
Memory:
  8x NO DIMM NO DIMM  3 rank
  8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1867 MHz
  8x Samsung M393A2G40DB0-CPB 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>
The Huawei CH121 V3 and Huawei CH222 V3 models are electronically equivalent.
The results have been measured on a Huawei CH121 V3 model.

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.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
Huawei

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SPECfp2006 = 104
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Base Portability Flags (Continued)

437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
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

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Test date: Jan-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014
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<tr>
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<td>SPECfp_base2006</td>
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### CPU2006 license: 3175

**Test date:** Jan-2015  
**Test sponsor:** Huawei  
**Hardware Availability:** Sep-2014  
**Tested by:** Huawei  
**Software Availability:** Sep-2014

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## Peak Portability Flags

Same as Base Portability Flags

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## Peak Optimization Flags

### C benchmarks:

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>433.milc</td>
<td>-xCORE-AVX2, -prof-gen, -ipo, -O3, -no-prec-div, -prof-use, -auto-llp32, -ansi-alias</td>
</tr>
<tr>
<td>470.lbm</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>basepeak = yes</td>
</tr>
</tbody>
</table>

### C++ benchmarks:

<table>
<thead>
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<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
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<tr>
<td>444.namd</td>
<td>-xCORE-AVX2, -prof-gen, -ipo, -O3, -no-prec-div, -prof-use, -fno-alias, -auto-lllp32</td>
</tr>
<tr>
<td>447.dealII</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>450.soplex</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>453.povray</td>
<td>-xCORE-AVX2, -prof-gen, -ipo, -O3, -no-prec-div, -prof-use, -unroll4, -ansi-alias</td>
</tr>
</tbody>
</table>

### Fortran benchmarks:

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>416.gamess</td>
<td>-xCORE-AVX2, -prof-gen, -ipo, -O3, -no-prec-div, -prof-use, -unroll2, -inline-level=0, -scalar-rep-</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>-xCORE-AVX2, -prof-gen, -ipo, -O3, -no-prec-div, -prof-use, -unroll2, -inline-level=0, -opt-prefetch, -parallel</td>
</tr>
<tr>
<td>465.tonto</td>
<td>-xCORE-AVX2, -prof-gen, -ipo, -O3, -no-prec-div, -prof-use, -inline-calloc, -opt-malloc-options=3, -auto, -unroll4</td>
</tr>
</tbody>
</table>

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Peak Optimization Flags (Continued)

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
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