## Huawei

### KunLun 9008 (Intel Xeon E7-8890 v3)

**SPECfp\(^\circ\)_rate2006 = Not Run**

**SPECfp rate_base2006 = 4000**

<table>
<thead>
<tr>
<th>SPECfp(^\circ) Test</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>bwaves</td>
<td></td>
</tr>
<tr>
<td>gamess</td>
<td></td>
</tr>
<tr>
<td>milc</td>
<td></td>
</tr>
<tr>
<td>zeusmp</td>
<td></td>
</tr>
<tr>
<td>gromacs</td>
<td></td>
</tr>
<tr>
<td>cactusADM</td>
<td></td>
</tr>
<tr>
<td>leslie3d</td>
<td></td>
</tr>
<tr>
<td>namd</td>
<td></td>
</tr>
<tr>
<td>dealII</td>
<td></td>
</tr>
<tr>
<td>soplex</td>
<td></td>
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<tr>
<td>povray</td>
<td></td>
</tr>
<tr>
<td>calculix</td>
<td></td>
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<tr>
<td>GemsFDTD</td>
<td></td>
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<tr>
<td>toonto</td>
<td></td>
</tr>
<tr>
<td>lbm</td>
<td></td>
</tr>
<tr>
<td>wrf</td>
<td></td>
</tr>
<tr>
<td>sphinx3</td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

**CPU Name:** Intel Xeon E7-8890 v3  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.30 GHz  
**CPU MHz:** 2500  
**FPU:** Integrated  
**CPU(s) enabled:** 144 cores, 8 chips, 18 cores/chip, 2 threads/core  
**CPU(s) orderable:** 4, 8 chips  
**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 7.2 (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:** No  
**File System:** xfs

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info@spec.org

http://www.spec.org/
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KunLun 9008 (Intel Xeon E7-8890 v3)

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 4000

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
Test date: May-2016
Hardware Availability: Jan-2016
Software Availability: Oct-2015

L3 Cache: 45 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 3 x 300 GB SAS, 10K RPM
Other Hardware: None
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
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<tbody>
<tr>
<td>410.bwaves</td>
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<td>1260</td>
<td>3110</td>
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<td>523</td>
<td>4420</td>
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<tr>
<td>447.dealII</td>
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<td>425</td>
<td>7760</td>
<td>424</td>
<td>7760</td>
</tr>
<tr>
<td>450.soplex</td>
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<td>1127</td>
<td>2130</td>
<td>1130</td>
<td>2130</td>
</tr>
<tr>
<td>453.povray</td>
<td>288</td>
<td>239</td>
<td>6410</td>
<td>239</td>
<td>6410</td>
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<tr>
<td>454.calculix</td>
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<td>361</td>
<td>6590</td>
<td>363</td>
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<td>459.GemsFDTD</td>
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<td>2010</td>
<td>1521</td>
<td>2010</td>
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<td>614</td>
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<td>1527</td>
<td>3680</td>
<td>1517</td>
<td>3700</td>
</tr>
</tbody>
</table>

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Turbo mode set with:
cpupower -c all frequency-set -g performance
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**SPEC CFP2006 Result**

<table>
<thead>
<tr>
<th>SPECfp_rate2006</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
<td>4000</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 3175

**Test sponsor:** Huawei

**Test date:** May-2016

**Tested by:** Huawei

**Hardware Availability:** Jan-2016

**Software Availability:** Oct-2015

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**Platform Notes**

BIOS configuration:
- Set Power Efficiency Mode to Performance
- Set Lock_step to disabled
- Baseboard Management Controller used to adjust the fan speed to 100%
- Set C-State to C0/C1

Sysinfo program /home/spec/config/sysinfo.rev6914

$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1

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 E7-8890 v3 @ 2.50GHz
- 8 "physical id"s (chips)
- 288 "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: 18
  - siblings: 36
  - physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 4: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 5: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 6: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 7: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
- cache size: 46080 KB

From /proc/meminfo

- MemTotal: 1054138164 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

- os-release:
  - NAME="Red Hat Enterprise Linux Server"
  - VERSION="7.2 (Maipo)"
  - ID="rhel"
  - ID_LIKE="fedora"
  - VERSION_ID="7.2"
  - PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
  - ANSI_COLOR="0;31"
  - CPE_NAME="cpe:/o:rhel:enterprise_linux:7.2:GA:server"
- redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
- system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)

uname -a:

Continued on next page
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Platform Notes (Continued)

Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 30 06:03

SPEC is set to: /home/spec
Files
System Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 993G 8.5G 985G 1% /home

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 American Megatrends Inc. BLXSV825 04/23/2016
Memory:
64x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1600 MHz
128x NO DIMM NO DIMM

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of memory is 1024 GB and the dmidecode description should have two lines reading as:
128x NO DIMM NO DIMM
64x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1600 MHz

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/spec/libs/32:/home/spec/libs/64:/home/spec/sh"

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/enable
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
umactl --interleave=all runspec <etc>

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

410.bwaves: -DSPEC_CPU_LP64
416.games: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
435.zeusmp: -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
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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
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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

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-V1.2-HSW-RevG.xml

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Tested with SPEC CPU2006 v1.2.
Originally published on 28 June 2016.