Huawei
Kunlun 9008 (Intel Xeon E7-8860 v4)

SPEClnt®_rate2006 = Not Run
SPEClnt_rate_base2006 = 5610

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

Test date: Apr-2017
Hardware Availability: Jan-2016

Software Availability: Dec-2015

### Hardware
- CPU Name: Intel Xeon E7-8860 v4
- CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
- CPU MHz: 2200
- FPU: Integrated
- CPU(s) enabled: 144 cores, 8 chips, 18 cores/chip, 2 threads/core
- CPU(s) orderable: 4.8 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: 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: 2 x 600 GB SAS, 10K RPM
- Other Hardware: None

### Software
- Operating System: SUSE Linux Enterprise Server 12 (x86_64) SP1 Kernel 3.12.49-11-default
- Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
- Auto Parallel: No
- File System: ext4
- System State: Run level 5 (multi-user)
- Base Pointers: 32-bit
- Peak Pointers: 32/64-bit
- Other Software: Microquill SmartHeap V10.2

- 400.perlbench
- 401.bzip2
- 403.gcc
- 429.mcf
- 445.gobmk
- 456.hmmer
- 458.sjeng
- 462.libquantum
- 464.h264ref
- 471.omnetpp
- 473.astar
- 483.xalancbmk
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>288</td>
<td>634</td>
<td>4440</td>
<td>635</td>
<td>4430</td>
<td>635</td>
<td>4430</td>
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<tr>
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<td>1037</td>
<td>2680</td>
<td>1043</td>
<td>2660</td>
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<td>403.gcc</td>
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<td>603</td>
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<td>601</td>
<td>3860</td>
<td>595</td>
<td>3890</td>
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<td>6770</td>
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<td>4000</td>
<td>752</td>
<td>4020</td>
<td>752</td>
<td>4020</td>
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<td>8440</td>
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<td>830</td>
<td>4200</td>
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<td>61100</td>
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<tr>
<td>473.astar</td>
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<td>636</td>
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<td>636</td>
<td>3180</td>
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<tr>
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<td>288</td>
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<td>6230</td>
<td>319</td>
<td>6230</td>
<td>320</td>
<td>6210</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-ew80 Fri Mar 31 08:17:32 2017

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 E7-8860 v4 @ 2.20GHz
  & "physical id"s (chips)
  288 "processors"
Huawei

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SPEC CINT2006 Result

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Platform Notes (Continued)

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: 1058048596 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d

SUSE Linux Enterprise Server 12 SP1

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

SUSE-release:

- VERSION = 12
- PATCHLEVEL = 1
- # This file is deprecated and will be removed in a future service pack or release.
- # Please check /etc/os-release for details about this release.

os-release:

- NAME="SLES"
- VERSION="12-SP1"
- VERSION_ID="12.1"
- PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
- ID="sles"
- ANSI_COLOR="0;32"
- CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:

8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 5 Mar 31 08:16

SPEC is set to: /spec

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 ext4 1.1T 130G 926G 13% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
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Platform Notes (Continued)

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. 5.11 02/21/2017
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)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/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/enabled
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 -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Base Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -D_FILE_OFFSET_BITS=64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64

Continued on next page
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Base Portability Flags (Continued)
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags
C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3
C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags
C benchmarks:
403.gcc: -Dalloca=_alloca

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-BDW-RevG.20170404.xml

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

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