Huawei
Kunlun 9016(Intel Xeon E7-8855 v4)

SPECint®_rate2006 = Not Run
SPECint_rate_base2006 = 8000

CPU2006 license: 3175
Test date: May-2017
Test sponsor: Huawei
Hardware Availability: Jan-2016
Tested by: Huawei
Software Availability: Sep-2016

<table>
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<th>SPECint Rate</th>
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<tr>
<th>Hardware</th>
<th>Operating System</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon E7-8855 v4</td>
<td>SUSE Linux Enterprise Server 12 (x86_64) SP1</td>
<td></td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz</td>
<td>3.12.49-11-default</td>
<td></td>
</tr>
<tr>
<td>CPU MHZ: 2100</td>
<td>Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux</td>
<td></td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>Auto Parallel: No</td>
<td></td>
</tr>
<tr>
<td>CPU(s) enabled: 224 cores, 16 chips, 14 cores/chip, 2 threads/core</td>
<td>File System: ext4</td>
<td></td>
</tr>
<tr>
<td>CPU(s) orderable: 4,8,16 chip</td>
<td>System State: Run level 5 (multi-user)</td>
<td></td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td>Base Pointers: 32-bit</td>
<td></td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
<td>Peak Pointers: 32/64-bit</td>
<td></td>
</tr>
<tr>
<td>L3 Cache: 35 MB I+D on chip per chip</td>
<td>Other Software: Microquill SmartHeap V10.2</td>
<td></td>
</tr>
<tr>
<td>Other Cache: None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory: 2 TB (128 x 16 GB 2Rx4 PC4-2133P-R, running at 1333 MHz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem: 2 x 600 GB SAS, 10K RPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Hardware: None</td>
<td></td>
<td></td>
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Results Table

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<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Base</td>
<td></td>
<td>Peak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400.perlbench</td>
<td>448</td>
<td>712</td>
<td>6150</td>
<td>6170</td>
<td>6170</td>
<td></td>
<td></td>
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<tr>
<td>401.bzip2</td>
<td>448</td>
<td>1140</td>
<td>3790</td>
<td>1142</td>
<td>3790</td>
<td>679</td>
<td>5310</td>
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<tr>
<td>403.gcc</td>
<td>448</td>
<td>682</td>
<td>5290</td>
<td>669</td>
<td>5390</td>
<td>679</td>
<td>5310</td>
</tr>
<tr>
<td>429.mcf</td>
<td>448</td>
<td>400</td>
<td>10200</td>
<td>399</td>
<td>10200</td>
<td>399</td>
<td>10200</td>
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<tr>
<td>445.gobmk</td>
<td>448</td>
<td>897</td>
<td>5240</td>
<td>897</td>
<td>5240</td>
<td>888</td>
<td>5290</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>448</td>
<td>338</td>
<td>12400</td>
<td>334</td>
<td>12500</td>
<td>334</td>
<td>12500</td>
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<tr>
<td>458.sjeng</td>
<td>448</td>
<td>922</td>
<td>5880</td>
<td>922</td>
<td>5880</td>
<td>923</td>
<td>5870</td>
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<tr>
<td>462.libquantum</td>
<td>448</td>
<td>109</td>
<td>85500</td>
<td>109</td>
<td>85400</td>
<td>109</td>
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<tr>
<td>464.h264ref</td>
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<td>10400</td>
<td>955</td>
<td>10400</td>
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<td>471.omnetpp</td>
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<td>473.astar</td>
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<td>4650</td>
<td>675</td>
<td>4660</td>
<td>675</td>
<td>4660</td>
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<tr>
<td>483.xalancbmk</td>
<td>448</td>
<td>327</td>
<td>9450</td>
<td>325</td>
<td>9510</td>
<td>328</td>
<td>9430</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:
cpunode -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.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
runtime on linux-ew80 Mon May 22 08:20:49 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 E7-8855 v4 @ 2.10GHz
16 "physical id"s (chips)
448 "processors"

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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 : 14
siblings : 28
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
physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 4: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 5: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 7: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 8: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 9: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 10: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 11: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 12: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 13: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 14: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 15: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB

From /proc/meminfo
MemTotal: 2117105068 kB
HugePages_Total: 153600
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
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

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Platform Notes (Continued)

run-level 5 May 22 08:18

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 ext4 1.1T 95G 961G 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 American Megatrends Inc. BLXSV207 04/17/2017
Memory:
128x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1333 MHz
256x 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/sh10.2"

Binaries compiled on a system with 1x Intel Core i7-4790K CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2
Transparent Huge Pages enabled by default
Filesystem page cache cleared with:
    echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
    numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
    icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

C++ benchmarks:
    icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

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

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Base Portability Flags (Continued)

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
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.2-BDW-RevG.20170404.xml