Fujitsu
PRIMERGY RX2530 M4, Intel Xeon Gold 6140, 2.30GHz

SPECint®_rate2006 = Not Run
SPECint_rate_base2006 = 1760

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Aug-2017
Hardware Availability: Jul-2017
Software Availability: Apr-2017

400.perlbench 72 1310
401.bzip2 72 791
403.gcc 72 1270
429.mcf 72 2420
445.gobmk 72 1050
456.hmmer 72 2400
458.sjeng 72 1130
462.libquantum 72 28800
464.h264ref 72 1900
471.omnetpp 72 920
473.astar 72 977
483.xalancbmk 72 2030

SPECint_rate_base2006 = 1760

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon Gold 6140</td>
<td>Operating System: SUSE Linux Enterprise Server 12 SP2</td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz</td>
<td>4.4.21-69-default</td>
</tr>
<tr>
<td>CPU MHZ: 2300</td>
<td>Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>CPU(s) enabled: 36 cores, 2 chips, 18 cores/chip, 2 threads/core</td>
<td>File System: tmpfs</td>
</tr>
<tr>
<td>CPU(s) orderable: 1.2 chips</td>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td>Base Pointers: 32-bit</td>
</tr>
<tr>
<td>Secondary Cache: 1 MB I+D on chip per core</td>
<td>Peak Pointers: Not Applicable</td>
</tr>
<tr>
<td>L3 Cache: 24.75 MB I+D on chip per chip</td>
<td>Other Software: Microquill SmartHeap V10.2</td>
</tr>
<tr>
<td>Other Cache: None</td>
<td></td>
</tr>
<tr>
<td>Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem: 752 GB tmpfs</td>
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</tr>
<tr>
<td>Other Hardware: None</td>
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Results Table

<table>
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<tr>
<th>Benchmark</th>
<th>Copies</th>
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<th>Ratio</th>
<th>Seconds</th>
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<td>perlbench</td>
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<td>mcf</td>
<td>72</td>
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<td>2420</td>
<td>273</td>
<td>2410</td>
<td>270</td>
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<td>gobmk</td>
<td>72</td>
<td>719</td>
<td>1050</td>
<td>720</td>
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<td>718</td>
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<td>2400</td>
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<td>774</td>
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<td>774</td>
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<tr>
<td>libquantum</td>
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<td>51.7</td>
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<tr>
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<td>2030</td>
<td>245</td>
<td>2030</td>
<td>245</td>
<td>2020</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"
Kernel Boot Parameter set with : nohz_full=1-71
Turbo mode set with :
cpupower -c all frequency-set -g performance
Tmpfs filesystem can be set with:
  mkdir /home/memory
  mount -t tmpfs -o size=752g, rw tmpfs /home/memory
Process tuning setting:
  echo 100000000 > /proc/sys/kernel/sched_min_granularity_ns
  echo 150000000 > /proc/sys/kernel/sched_wakeup_granularity_ns
  echo 0 > /proc/sys/kernel/numa_balancing
  cpu idle state set with:
  cpupower idle-set -d 1
  cpupower idle-set -d 2

Platform Notes

BIOS configuration:
  Link Frequency Select = 10.4 GT/s
  HWPM Support = Disabled
  Intel Virtualization Technology = Disabled

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info@spec.org
http://www.spec.org/
SPEC CINT2006 Result

Fujitsu
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Platform Notes (Continued)

Sub NUMA Clustering = Enabled
IMC Interleaving = 1-way
LLC Dead Line Alloc = Disabled
Stale AtoS = Enabled
Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f986996cbe290c1)
running on linux-zz9i Tue Aug 15 08:24:45 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) Gold 6140 CPU @ 2.30GHz
  2 "physical id"s (chips)
  72 "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
cache size : 25344 KB

From /proc/meminfo
MemTotal: 394407124 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2

From /etc/*release*/etc/*version*/
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 2
  # 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-SP2"
  VERSION_ID="12.2"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
Linux linux-zz9i 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016

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Platform Notes (Continued)

(9464f67) x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Aug 15 08:04
SPEC is set to: /home/memory/speccpu
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 752G 4.1G 748G 1% /home/memory
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 FUSITSU // American Megatrends Inc. V5.0.0.12 R1.4.1 for D3383-A1x
06/19/2017
Memory:
24x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666 MHz
(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "~/home/memory/speccpu/lib/ia32:/home/memory/speccpu/lib/intel64:/home/memory/speccpu/sh10.2"
Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
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_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

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Base Portability Flags (Continued)

- 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
- 483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX512 -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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-SKL-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-SKL-RevA.xml
<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate2006</td>
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For other inquiries, please contact webmaster@spec.org.

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