SPEC® CINT2006 Result

Fujitsu
PRIMERGY RX2530 M4, Intel Xeon Platinum 8168, 2.70GHz

SPECint®_rate2006 = Not Run
SPECint_rate_base2006 = 2460

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

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

Hardware
CPU Name: Intel Xeon Platinum 8168
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 2700
FPU: Integrated
CPU(s) enabled: 48 cores, 2 chips, 24 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 1 MB I+D on chip per core
L3 Cache: 33 MB I+D on chip per chip
Other Cache: None
Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 752 GB tmpfs
Other Hardware: None

Software
Operating System: SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux
Auto Parallel: No
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: Not Applicable
Other Software: Microquill SmartHeap V10.2
SPEC CINT2006 Result

Fujitsu
PRIMERGY RX2530 M4, Intel Xeon Platinum 8168, 2.70GHz

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 2460

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

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>96</td>
<td>479</td>
<td></td>
<td>478</td>
<td>1960</td>
<td>478</td>
<td>1960</td>
</tr>
<tr>
<td>bzip2</td>
<td>96</td>
<td>813</td>
<td></td>
<td>812</td>
<td>1140</td>
<td>812</td>
<td>1140</td>
</tr>
<tr>
<td>gcc</td>
<td>96</td>
<td>446</td>
<td></td>
<td>447</td>
<td>1730</td>
<td>447</td>
<td>1730</td>
</tr>
<tr>
<td>mcf</td>
<td>96</td>
<td>281</td>
<td></td>
<td>281</td>
<td>3110</td>
<td>281</td>
<td>3120</td>
</tr>
<tr>
<td>gobmk</td>
<td>96</td>
<td>627</td>
<td></td>
<td>627</td>
<td>1610</td>
<td>627</td>
<td>1610</td>
</tr>
<tr>
<td>hammer</td>
<td>96</td>
<td>263</td>
<td></td>
<td>262</td>
<td>3410</td>
<td>262</td>
<td>3420</td>
</tr>
<tr>
<td>sjeng</td>
<td>96</td>
<td>677</td>
<td></td>
<td>676</td>
<td>1720</td>
<td>676</td>
<td>1720</td>
</tr>
<tr>
<td>libquantum</td>
<td>96</td>
<td>48.2</td>
<td></td>
<td>48.4</td>
<td>41300</td>
<td>48.4</td>
<td>41100</td>
</tr>
<tr>
<td>h264ref</td>
<td>96</td>
<td>737</td>
<td></td>
<td>736</td>
<td>2880</td>
<td>736</td>
<td>2890</td>
</tr>
<tr>
<td>omnnetpp</td>
<td>96</td>
<td>533</td>
<td></td>
<td>532</td>
<td>1130</td>
<td>532</td>
<td>1130</td>
</tr>
<tr>
<td>astar</td>
<td>96</td>
<td>522</td>
<td></td>
<td>520</td>
<td>1290</td>
<td>520</td>
<td>1300</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>96</td>
<td>259</td>
<td></td>
<td>259</td>
<td>2550</td>
<td>259</td>
<td>2550</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=1-95
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 10000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 15000000 > /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

Continued on next page
SPEC CINT2006 Result

Fujitsu

PRIMERGY RX2530 M4, Intel Xeon Platinum 8168, 2.70GHz

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 2460

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

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

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 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-vv4c Thu Aug  3 09:53:01 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) Platinum 8168 CPU @ 2.70GHz
 2 "physical id"s (chips)
    96 "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 : 24
  siblings : 48
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
           27 28 29
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
           27 28 29
  cache size : 33792 KB

From /proc/meminfo
MemTotal:       394412256 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"

Continued on next page
Fujitsu
PRIMERGY RX2530 M4, Intel Xeon Platinum 8168, 2.70GHz

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 2460

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.:
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
Fujitsu
PRIMERGY RX2530 M4, Intel Xeon Platinum 8168, 2.70GHz

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 2460

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

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

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
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
Fujitsu
PRIMERGY RX2530 M4, Intel Xeon Platinum 8168,
2.70GHz

| CPU2006 license: | 19 | Test date: | Aug-2017 |
| Test sponsor: | Fujitsu | Hardware Availability: | Jul-2017 |
| Tested by: | Fujitsu | Software Availability: | Apr-2017 |

SPECint\_rate2006 = Not Run
SPECint\_rate\_base2006 = 2460