Fujitsu

PRIMERGY RX2530 M4, Intel Xeon Gold 6128, 3.40GHz

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

Hardware

CPU Name: Intel Xeon Gold 6128
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 3400
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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

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;
Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux
Auto Parallel: No
File System: tmpfs
System State: Run level 3 (multi-user)

SPEC® CFP2006 Result

SPECfp®_rate2006 =  Not Run
SPECfp_rate_base2006 = 780

Fujitsu

3.40GHz PRIMERGY RX2530 M4, Intel Xeon Gold 6128,

410.bwaves 24 | 667
416.gamess 24 | 919
433.milc 24 | 936
434.zeusmp 24 | 843
435.gromacs 24 | 969
436.cactusADM 24 | 1070
437.leslie3d 24 | 533
444.namd 24 | 530
447.dealII 24 | 532
450.soplex 24 | 948
453.povray 24 | 1060
454.calculix 24 | 1070
459.GemsFDTD 24 | 462
465.tonto 24 | 762
470.lbm 24 | 882
481.wrf 24 | 1030
482.sphinx3 24 | 703

SPECfp_rate_base2006 = 780

Continued on next page
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SPEC CFP2006 Result

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L3 Cache: 19.25 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
Base Pointers: 32/64-bit
Peak Pointers: Not Applicable
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>703</td>
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<td>702</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=1-23
Turbo mode set with :
cpuspower -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 tunning setting:

Continued on next page
**Spec CFP2006 Result**

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**SPECfp_rate2006 = Not Run**

**SPECfp_rate_base2006 = 780**

CPU2006 license: 19
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 Tested by: Fujitsu

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

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**Operating System Notes (Continued)**

```
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
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-vfzv Tue Jul 4 01:27:46 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 6128 CPU @ 3.40GHz
 2 "physical id"s (chips)
 24 "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 : 6
siblings : 12
  physical 0: cores 0 6 9 10 11 13
  physical 1: cores 0 2 3 4 6 13
cache size : 19712 KB
```

From /proc/meminfo
```
MemTotal: 394395996 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

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.
```

Continued on next page
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Platform Notes (Continued)

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:
(9464f67) x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Jul 3 21:08

SPEC is set to: /home/memory/speccpu

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 SMIOS" standard.

BIOS FUJITSU // American Megatrends Inc. V5.0.0.12 R1.4.1 for D3383-A1x
06/19/2017
Memory:
24x Samsung M393A2G40EB2-CTD 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.:
  numactl --interleave=all runspec <etc>
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Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gameSS: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.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 -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

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

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

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Base Optimization Flags (Continued)

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

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

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

Tested with SPEC CPU2006 v1.2.