## SPEC® CFP2006 Result

**Fujitsu**

PRIMERGY RX2530 M4, Intel Xeon Gold 5122, 3.60GHz

<table>
<thead>
<tr>
<th>SPECfp®_rate2006 = Not Run</th>
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<tr>
<td>SPECfp_rate_base2006 = 534</td>
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</table>

### CPU2006 license: 19

Test sponsor: Fujitsu  
Tested by: Fujitsu  
Test date: Jul-2017  
Hardware Availability: Jul-2017  
Software Availability: Apr-2017

### Hardware

<table>
<thead>
<tr>
<th>Test</th>
<th>Copies</th>
<th>SPECfp_rate_base2006</th>
</tr>
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<tr>
<td>410.bwaves</td>
<td>16</td>
<td>362</td>
</tr>
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<tr>
<td>482.sphinx3</td>
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<td>487</td>
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### 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)

### CPU Name:** Intel Xeon Gold 5122  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz  
**CPU MHz:** 3600  
**FPU:** Integrated  
**CPU(s) enabled:** 8 cores, 2 chips, 4 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

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Continued on next page
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L3 Cache: 16.5 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>
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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=1-15
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 tunning setting:

Continued on next page
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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 = Disabled
- IMC Interleaving = 2-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-ze9i Fri Jul 28 06:36:51 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 5122 CPU @ 3.60GHz
- 2 "physical id"s (chips)
- 16 "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: 4
  - siblings: 8
  - physical 0: cores 1 2 5 11
  - physical 1: cores 1 5 9 13
- cache size: 16896 KB

From /proc/meminfo
- MemTotal: 394407660 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

Continued on next page
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Platform Notes (Continued)

# 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
(9464f67) x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Jul 28 02:07

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 FUJITSU // 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.:
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

Continued on next page
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### Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
- `xCORE-AVX2`  
- `ipo`  
- `--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:


You can also download the XML flags sources by saving the following links:


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