## SPEC® CFP2006 Result

**Fujitsu**

**PRIMERGY RX2520 M4, Intel Xeon Gold 5120 2.20GHz**

### CPU2006 license: 19

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

**SPECfp®_rate2006 = Not Run**

**SPECfp_rate_base2006 = 1050**

<table>
<thead>
<tr>
<th>SPECf06 name</th>
<th>Copies</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>700</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1100</th>
<th>1200</th>
<th>1300</th>
<th>1400</th>
<th>1500</th>
<th>1600</th>
<th>1700</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1280</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>882</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>649</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>454.calculix</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>585</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1080</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1020</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td></td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPECfp_rate_base2006 = 1050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Hardware

**CPU Name:** Intel Xeon Gold 5120  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.20 GHz  
**CPU MHZ:** 2200  
**FPU:** Integrated  
**CPU(s) enabled:** 28 cores, 2 chips, 14 cores/chip, 2 threads/core  
**Primary Cache:** 32 KB L1 + 32 KB D on chip per core  
**Secondary Cache:** 1 MB L1+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)
**Fujitsu**

**PRIMERGY RX2520 M4, Intel Xeon Gold 5120 2.20GHz**

**SPEC CFP2006 Result**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>56</td>
<td>841</td>
<td>905</td>
<td>841</td>
<td>905</td>
<td>841</td>
<td>905</td>
<td></td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>56</td>
<td><strong>1040</strong></td>
<td><strong>1050</strong></td>
<td>1039</td>
<td>1050</td>
<td>1040</td>
<td>1050</td>
<td></td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>56</td>
<td>584</td>
<td>881</td>
<td><strong>583</strong></td>
<td><strong>882</strong></td>
<td>583</td>
<td>882</td>
<td></td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>56</td>
<td><strong>398</strong></td>
<td><strong>1280</strong></td>
<td>396</td>
<td>1290</td>
<td>399</td>
<td>1280</td>
<td></td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td>56</td>
<td>321</td>
<td>1240</td>
<td><strong>322</strong></td>
<td><strong>1240</strong></td>
<td>322</td>
<td>1240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>56</td>
<td><strong>485</strong></td>
<td><strong>1380</strong></td>
<td>484</td>
<td>1380</td>
<td>485</td>
<td>1380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>56</td>
<td>836</td>
<td>629</td>
<td>824</td>
<td>639</td>
<td><strong>835</strong></td>
<td><strong>630</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>56</td>
<td><strong>518</strong></td>
<td><strong>867</strong></td>
<td>520</td>
<td>863</td>
<td>517</td>
<td>869</td>
<td></td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>56</td>
<td>368</td>
<td>1740</td>
<td><strong>368</strong></td>
<td><strong>1740</strong></td>
<td>370</td>
<td>1730</td>
<td></td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td>56</td>
<td>722</td>
<td>647</td>
<td>718</td>
<td>651</td>
<td><strong>720</strong></td>
<td><strong>649</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td>56</td>
<td>191</td>
<td>1560</td>
<td>199</td>
<td>1500</td>
<td><strong>191</strong></td>
<td><strong>1560</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>454.calculix</td>
<td>56</td>
<td>284</td>
<td>1630</td>
<td>284</td>
<td>1620</td>
<td><strong>284</strong></td>
<td><strong>1630</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>56</td>
<td><strong>1016</strong></td>
<td><strong>585</strong></td>
<td>1016</td>
<td>585</td>
<td>1016</td>
<td>585</td>
<td></td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>56</td>
<td><strong>498</strong></td>
<td><strong>1110</strong></td>
<td>500</td>
<td>1100</td>
<td>497</td>
<td>1110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>56</td>
<td>665</td>
<td>1160</td>
<td>665</td>
<td>1160</td>
<td><strong>665</strong></td>
<td><strong>1160</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td>56</td>
<td>576</td>
<td>1090</td>
<td><strong>577</strong></td>
<td><strong>1080</strong></td>
<td>578</td>
<td>1080</td>
<td></td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>56</td>
<td>1065</td>
<td>1020</td>
<td><strong>1067</strong></td>
<td><strong>1020</strong></td>
<td>1069</td>
<td>1020</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Operating System Notes**

Stack size set to unlimited using "ulimit -s unlimited"
Set Kernel Boot Parameter: nohz_full=1-55
Set CPU frequency governor to maximum performance with:
cpuspeed -c all frequency-set -g performance
Set tmpfs filesystem with:
mkdir /home/memory
mount -t tmpfs -o size=384g,rw tmpfs /home/memory

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.
Fujitsu
PRIMERGY RX2520 M4, Intel Xeon Gold 5120
2.20GHz

| SPECfp_rate2006 = | Not Run |
| SPECfp_rate_base2006 = | 1050 |

Operating System Notes (Continued)

Process tuning settings:
- `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`
- `cpupower idle-set -d 1`
- `cpupower idle-set -d 2`

Platform Notes

BIOS configuration:
- HWPM Support = Disabled
- Intel Virtualization Technology = Disabled
- Link Frequency Select = 10.4 GT/s
- 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 RX2520M4 Thu Nov 23 16:51:44 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 5120 CPU @ 2.20GHz
- 2 "physical id"s (chips)
- 56 "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 : 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
- cache size : 19712 KB

From /proc/meminfo
- MemTotal: 394412872 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

Continued on next page
SPEC CFP2006 Result

Fujitsu

PRIMERGY RX2520 M4, Intel Xeon Gold 5120
2.20GHz

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1050

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

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

Platform Notes (Continued)

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 RX2520M4 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 Nov 23 04:43

SPEC is set to: /home/memory/speccpu

Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 384G 4.9G 380G 2% /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 R1.13.0 for D3386-A1x
11/02/2017
Memory:
12x Micron 36ASF4G72PZ-2G6D1 32 GB 2 rank 2666 MHz, configured at 2400 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>
Fujitsu

PRIMERGY RX2520 M4, Intel Xeon Gold 5120
2.20GHz

SPEC CFP2006 Result

Fujitsu

2.20GHz

SPEC CFP2006 = Not Run
SPECfp_rate_base2006 = 1050

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

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

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.game5: -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 -03 -no-prec-div -qopt-prefetch -auto-p32
        -qopt-mem-layout-trans=3

C++ benchmarks:
    -xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -auto-p32
        -qopt-mem-layout-trans=3

Fortran benchmarks:
    -xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch
Fujitsu
PRIMERGY RX2520 M4, Intel Xeon Gold 5120
2.20GHz

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1050

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

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-RevD.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-RevD.xml

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Jan 16 11:54:52 2018 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 13 January 2018.