# SPEC® CFP2006 Result

## Fujitsu

PRIMERGY RX2540 M2, Intel Xeon E5-2680 v4, 2.40 GHz

| SPECfp®2006 | 122 |
| SPECfp_base2006 | 116 |

### CPU2006 license: 19

**Test sponsor:** Fujitsu  
**Tested by:** Fujitsu

| Test date: | Apr-2016 |
| Hardware Availability: | Apr-2016 |
| Software Availability: | Sep-2015 |

### Hardware

- **CPU Name:** Intel Xeon E5-2680 v4  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.30 GHz  
- **CPU MHz:** 2400  
- **FPU:** Integrated  
- **CPU(s) enabled:** 28 cores, 2 chips, 14 cores/chip, 2 threads/core  
- **CPU(s) orderable:** 1.2 chip  
- **Primary Cache:** 32 KB I + 32 KB D on chip per core  
- **Secondary Cache:** 256 KB I+D on chip per core

### Software

- **Operating System:** SUSE Linux Enterprise Server 12 SP1 (x86_64)  
- **Kernel:** 3.12.49-11-default  
- **Compiler:** C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes  
- **File System:** xfs  
- **System State:** Run level 5 (multi-user)

### SPECfp2006 = 122

```plaintext
410.bwaves
416.gamess
433.milc
434.zeusmp
435.gromacs
436.cactusADM
437.leslie3d
444.namd
447.dealII
450.soplex
453.povray
454.calculix
459.GemsFDTD
465.tonto
470.lbm
481.wrf
482.sphinx3
```

### SPECfp_base2006 = 116

```plaintext
SPECfp2006 = 122
```

Continued on next page
SPEC CFP2006 Result

Fujitsu

PRIMERGY RX2540 M2, Intel Xeon E5-2680 v4, 2.40 GHz

SPECfp2006 = 122
SPECfp_base2006 = 116

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

L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</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>21.6</td>
<td>629</td>
<td>21.9</td>
<td>620</td>
<td>21.6</td>
<td>628</td>
<td>21.6</td>
<td>629</td>
<td>21.9</td>
<td>620</td>
<td>21.6</td>
<td>628</td>
</tr>
<tr>
<td>416.gamess</td>
<td>538</td>
<td>36.4</td>
<td>539</td>
<td>36.3</td>
<td>539</td>
<td>36.3</td>
<td>447</td>
<td>43.8</td>
<td>448</td>
<td>43.7</td>
<td>447</td>
<td>43.8</td>
</tr>
<tr>
<td>433.milc</td>
<td>131</td>
<td>70.1</td>
<td>133</td>
<td>69.1</td>
<td>132</td>
<td>69.3</td>
<td>131</td>
<td>70.1</td>
<td>133</td>
<td>69.1</td>
<td>132</td>
<td>69.3</td>
</tr>
<tr>
<td>434.zesmp</td>
<td>42.5</td>
<td>214</td>
<td>42.3</td>
<td>215</td>
<td>42.2</td>
<td>216</td>
<td>42.5</td>
<td>214</td>
<td>42.3</td>
<td>215</td>
<td>42.2</td>
<td>216</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>142</td>
<td>50.2</td>
<td>145</td>
<td>49.3</td>
<td>142</td>
<td>50.2</td>
<td>142</td>
<td>50.2</td>
<td>145</td>
<td>49.3</td>
<td>142</td>
<td>50.2</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>12.8</td>
<td>931</td>
<td>12.9</td>
<td>924</td>
<td>12.4</td>
<td>961</td>
<td>12.8</td>
<td>931</td>
<td>12.9</td>
<td>924</td>
<td>12.4</td>
<td>961</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>25.7</td>
<td>366</td>
<td>25.0</td>
<td>376</td>
<td>25.8</td>
<td>364</td>
<td>25.7</td>
<td>366</td>
<td>25.0</td>
<td>376</td>
<td>25.8</td>
<td>364</td>
</tr>
<tr>
<td>444.namd</td>
<td>278</td>
<td>28.9</td>
<td>277</td>
<td>29.0</td>
<td>277</td>
<td>29.0</td>
<td>268</td>
<td>29.9</td>
<td>269</td>
<td>29.9</td>
<td>268</td>
<td>29.9</td>
</tr>
<tr>
<td>447.dealII</td>
<td>183</td>
<td>62.5</td>
<td>183</td>
<td>62.5</td>
<td>184</td>
<td>62.3</td>
<td>183</td>
<td>62.5</td>
<td>183</td>
<td>62.5</td>
<td>184</td>
<td>62.3</td>
</tr>
<tr>
<td>450.soplex</td>
<td>180</td>
<td>46.3</td>
<td>181</td>
<td>46.0</td>
<td>180</td>
<td>46.3</td>
<td>180</td>
<td>46.3</td>
<td>181</td>
<td>46.0</td>
<td>180</td>
<td>46.3</td>
</tr>
<tr>
<td>453.povray</td>
<td>90.4</td>
<td>58.9</td>
<td>90.4</td>
<td>58.9</td>
<td>90.3</td>
<td>58.9</td>
<td>79.8</td>
<td>66.7</td>
<td>80.0</td>
<td>66.6</td>
<td>79.6</td>
<td>66.8</td>
</tr>
<tr>
<td>454.calculix</td>
<td>155</td>
<td>53.2</td>
<td>155</td>
<td>53.3</td>
<td>156</td>
<td>52.9</td>
<td>143</td>
<td>57.8</td>
<td>144</td>
<td>57.2</td>
<td>144</td>
<td>57.2</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>43.2</td>
<td>245</td>
<td>42.1</td>
<td>252</td>
<td>41.8</td>
<td>254</td>
<td>35.3</td>
<td>30.0</td>
<td>35.1</td>
<td>30.2</td>
<td>35.2</td>
<td>30.2</td>
</tr>
<tr>
<td>465.tonto</td>
<td>229</td>
<td>42.9</td>
<td>230</td>
<td>42.8</td>
<td>231</td>
<td>42.7</td>
<td>231</td>
<td>42.7</td>
<td>180</td>
<td>54.8</td>
<td>179</td>
<td>55.0</td>
</tr>
<tr>
<td>470.hm</td>
<td>15.3</td>
<td>898</td>
<td>15.6</td>
<td>881</td>
<td>15.7</td>
<td>877</td>
<td>15.3</td>
<td>898</td>
<td>15.6</td>
<td>881</td>
<td>15.7</td>
<td>877</td>
</tr>
<tr>
<td>481.wrf</td>
<td>96.4</td>
<td>116</td>
<td>98.9</td>
<td>113</td>
<td>99.4</td>
<td>112</td>
<td>96.4</td>
<td>116</td>
<td>98.9</td>
<td>113</td>
<td>99.4</td>
<td>112</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>265</td>
<td>73.7</td>
<td>266</td>
<td>73.2</td>
<td>266</td>
<td>73.2</td>
<td>265</td>
<td>73.7</td>
<td>266</td>
<td>73.2</td>
<td>266</td>
<td>73.2</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS configuration:
Energy Performance = Performance
Utilization Profile = Unbalanced
QPI snoop mode: Home Snoop
COD Enable = Disabled, Early Snoop = Disabled, Home Snoop Dir OSB = Disabled
CPU C1E Support = Disabled
Sysinfo program /home/SPECcpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb867b5a285932ceab81e28219e1
running on RX2540M2 Fri Apr 1 08:18:28 2016

Continued on next page
Fujitsu
PRIMERGY RX2540 M2, Intel Xeon E5-2680 v4, 2.40 GHz

SPECfp2006 = 122
SPECfp_base2006 = 116

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

Test date: Apr-2016
Hardware Availability: Apr-2016
Software Availability: Sep-2015

Platform Notes (Continued)

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) CPU E5-2680 v4@ 2.40GHz
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 : 35840 KB

From /proc/meminfo
MemTotal: 264398032 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 1
# 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.
NAME="SLES"
VERSION="12-SP1"
VERSION_ID="12.1"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME=cpe:/o:suse:sles:12:sp1"

uname -a:
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 5 Apr 1 08:17

SPEC is set to: /home/SPECcpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 424G 83G 342G 20% /home
Additional information from dmidecode:
Continued on next page
SPEC CFP2006 Result

Fujitsu
PRIMERGY RX2540 M2, Intel Xeon E5-2680 v4, 2.40 GHz

SPECfp2006 = 122
SPECfp_base2006 = 116

Platform Notes (Continued)

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. V5.0.0.11 R1.6.0 for D3289-B1x
03/11/2016
Memory:
16x Micron 36ASF2G72PZ-2G3A3 16 GB 2 rank 2400 MHz
8x NO DIMM NO DIMM

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"
OMP_NUM_THREADS = "28"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
For information about Fujitsu please visit: http://www.fujitsu.com

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

Continued on next page
SPEC CFP2006 Result

Fujitsu
PRIMERGY RX2540 M2, Intel Xeon E5-2680 v4, 2.40 GHz

SPECfp2006 = 122
SPECfp_base2006 = 116

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

Test date: Apr-2016
Hardware Availability: Apr-2016
Software Availability: Sep-2015

Base Portability Flags (Continued)

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 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
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 -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64
Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
   -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
   -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias
   -auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
   -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
   -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
   -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
   -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
   -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
   -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
   -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
   -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
   -inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
   -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
   -par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc

Continued on next page
**Fujitsu**

PRIMERGY RX2540 M2, Intel Xeon E5-2680 v4, 2.40 GHz

| SPECfp2006 = | 122 |
| SPECfp_base2006 = | 116 |

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

Test date: Apr-2016
Hardware Availability: Apr-2016
Software Availability: Sep-2015

---

**Peak Optimization Flags (Continued)**

465.tonto (continued):

- `opt-malloc-options=3` - `auto` - `unroll4`

Benchmarks using both Fortran and C:

- 435.gromacs: basepeak = yes
- 436.cactusADM: basepeak = yes
- 454.calculix: `-xCORE-AVX2` `-ipo` `-O3` `-no-prec-div` `-auto-ilp32` `-ansi-alias`
- 481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html


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

http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml

http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.20160517.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.
Originally published on 17 May 2016.