**Fujitsu**

PRIMERGY RX2530 M2, Intel Xeon E5-2660 v4, 2.00 GHz

| SPECfp®2006 | 117 |
| SPECfp_base2006 | 110 |

**CPU2006 license:** 19

**Test sponsor:** Fujitsu

**Tested by:** Fujitsu

**Hardware**

- **CPU Name:** Intel Xeon E5-2660 v4
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.20 GHz
- **CPU MHz:** 2000
- **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 3 (multi-user)

**Test date:** Apr-2016

**Hardware Availability:** Apr-2016

**Software Availability:** Sep-2015

**Test date:** Apr-2016

**Hardware Availability:** Apr-2016

**Software Availability:** Sep-2015
SPEC CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2530 M2, Intel Xeon E5-2660 v4, 2.00 GHz

SPECfp2006 = 117
SPECfp_base2006 = 110

CPU2006 license: 19
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, 1000 GB, 7200 RPM
Other Hardware: None

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

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

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 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on RX2530M2 Mon Apr 11 07:21:09 2016

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>22.2</td>
<td>613</td>
<td>22.0</td>
<td>617</td>
<td>22.1</td>
<td>616</td>
<td>22.2</td>
<td>613</td>
<td>22.0</td>
<td>617</td>
<td>22.1</td>
<td>616</td>
</tr>
<tr>
<td>416.gamess</td>
<td>595</td>
<td>32.9</td>
<td>597</td>
<td>32.8</td>
<td>595</td>
<td>32.9</td>
<td>460</td>
<td>42.6</td>
<td>464</td>
<td>42.2</td>
<td>461</td>
<td>42.5</td>
</tr>
<tr>
<td>433.milc</td>
<td>134</td>
<td>68.7</td>
<td>133</td>
<td>69.0</td>
<td>134</td>
<td>68.3</td>
<td>134</td>
<td>68.7</td>
<td>133</td>
<td>69.0</td>
<td>134</td>
<td>68.3</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>44.7</td>
<td>204</td>
<td>44.8</td>
<td>203</td>
<td>44.7</td>
<td>204</td>
<td>44.7</td>
<td>204</td>
<td>44.8</td>
<td>203</td>
<td>44.7</td>
<td>204</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>164</td>
<td>43.6</td>
<td>164</td>
<td>43.6</td>
<td>164</td>
<td>43.6</td>
<td>164</td>
<td>43.6</td>
<td>164</td>
<td>43.6</td>
<td>164</td>
<td>43.6</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>12.8</td>
<td>930</td>
<td>13.0</td>
<td>922</td>
<td>13.1</td>
<td>909</td>
<td>12.8</td>
<td>930</td>
<td>13.0</td>
<td>922</td>
<td>13.1</td>
<td>909</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>25.3</td>
<td>372</td>
<td>26.4</td>
<td>356</td>
<td>26.5</td>
<td>355</td>
<td>25.3</td>
<td>372</td>
<td>26.4</td>
<td>356</td>
<td>26.5</td>
<td>355</td>
</tr>
<tr>
<td>444.namd</td>
<td>285</td>
<td>28.2</td>
<td>285</td>
<td>28.1</td>
<td>285</td>
<td>28.1</td>
<td>276</td>
<td>29.0</td>
<td>276</td>
<td>29.0</td>
<td>276</td>
<td>29.0</td>
</tr>
<tr>
<td>447.dealII</td>
<td>189</td>
<td>60.7</td>
<td>187</td>
<td>61.2</td>
<td>189</td>
<td>60.6</td>
<td>189</td>
<td>60.7</td>
<td>187</td>
<td>61.2</td>
<td>189</td>
<td>60.6</td>
</tr>
<tr>
<td>450.soplex</td>
<td>186</td>
<td>44.7</td>
<td>184</td>
<td>45.2</td>
<td>184</td>
<td>45.3</td>
<td>186</td>
<td>44.7</td>
<td>184</td>
<td>45.2</td>
<td>184</td>
<td>45.3</td>
</tr>
<tr>
<td>453.povray</td>
<td>92.9</td>
<td>57.2</td>
<td>93.2</td>
<td>57.1</td>
<td>93.2</td>
<td>57.1</td>
<td>80.8</td>
<td>65.9</td>
<td>82.4</td>
<td>64.6</td>
<td>82.6</td>
<td>64.4</td>
</tr>
<tr>
<td>454.calculix</td>
<td>161</td>
<td>51.1</td>
<td>162</td>
<td>51.0</td>
<td>162</td>
<td>51.0</td>
<td>147</td>
<td>56.1</td>
<td>147</td>
<td>56.2</td>
<td>148</td>
<td>55.7</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>44.5</td>
<td>238</td>
<td>44.1</td>
<td>241</td>
<td>42.8</td>
<td>248</td>
<td>36.3</td>
<td>292</td>
<td>36.4</td>
<td>291</td>
<td>37.1</td>
<td>286</td>
</tr>
<tr>
<td>465.tonto</td>
<td>257</td>
<td>38.3</td>
<td>256</td>
<td>38.4</td>
<td>255</td>
<td>38.5</td>
<td>184</td>
<td>53.6</td>
<td>183</td>
<td>53.6</td>
<td>184</td>
<td>53.6</td>
</tr>
<tr>
<td>470.lbm</td>
<td>15.9</td>
<td>862</td>
<td>15.5</td>
<td>885</td>
<td>16.0</td>
<td>857</td>
<td>15.9</td>
<td>862</td>
<td>15.5</td>
<td>885</td>
<td>16.0</td>
<td>857</td>
</tr>
<tr>
<td>481.wrf</td>
<td>102</td>
<td>110</td>
<td>102</td>
<td>109</td>
<td>102</td>
<td>110</td>
<td>102</td>
<td>110</td>
<td>102</td>
<td>109</td>
<td>102</td>
<td>110</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>295</td>
<td>66.0</td>
<td>294</td>
<td>66.4</td>
<td>296</td>
<td>65.9</td>
<td>295</td>
<td>66.0</td>
<td>294</td>
<td>66.4</td>
<td>296</td>
<td>65.9</td>
</tr>
</tbody>
</table>

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

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Fujitsu
PRIMERGY RX2530 M2, Intel Xeon E5-2660 v4, 2.00 GHz

SPECfp2006 = 117
SPECfp_base2006 = 110

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 E5-2660 v4@ 2.00GHz
  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:       264323496 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.
os-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 3 Apr 11 07:19 last=5

SPEC is set to: /home/SPECcpu2006

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda3      xfs  890G  102G  788G 12%  /home
Additional information from dmidecode:
Continued on next page
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 D3279-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
SPEC CFP2006 Result

Fujitsu
PRIMERGY RX2530 M2, Intel Xeon E5-2660 v4, 2.00 GHz

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

SPECfp2006 = 117
SPECfp_base2006 = 110

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
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
**Fujitsu**

PRIMERGY RX2530 M2, Intel Xeon E5-2660 v4, 2.00 GHz

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>117</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>110</td>
</tr>
</tbody>
</table>

CPU2006 license: 19

Test sponsor: Fujitsu

Test date: Apr-2016

Hardware Availability: Apr-2016

Tested by: Fujitsu

Software Availability: Sep-2015

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 RX2530 M2, Intel Xeon E5-2660 v4, 2.00 GHz

SPECfp2006 = 117
SPECfp_base2006 = 110

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.
Report generated on Tue May 17 16:50:02 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 17 May 2016.