Fujitsu
PRIMERGY TX1330 M2, Intel Xeon E3-1230 v5, 3.40 GHz

SPECfp®2006 = 96.9
SPECfp_base2006 = 94.8

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

Test date: Dec-2015
Hardware Availability: Feb-2016
Software Availability: Sep-2015

CPU Name: Intel Xeon E3-1230 v5
CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz: 3400
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
CPU(s) orderable: 1 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 (x86_64)
Kernel 3.12.48-52.27-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: ext4
System State: Run level 3 (multi-user)
Fujitsu
PRIMERGY TX1330 M2, Intel Xeon E3-1230 v5, 3.40 GHz

SPECfp2006 = 96.9
SPECfp_base2006 = 94.8

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

L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)
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>97.8</td>
<td>139</td>
<td>97.5</td>
<td>139</td>
<td>97.3</td>
<td>140</td>
<td>97.8</td>
<td>139</td>
<td>97.5</td>
<td>139</td>
<td>97.3</td>
<td>140</td>
</tr>
<tr>
<td>416.gamess</td>
<td>399</td>
<td>49.1</td>
<td>400</td>
<td>49.0</td>
<td>400</td>
<td>49.0</td>
<td>363</td>
<td>54.0</td>
<td>363</td>
<td>54.0</td>
<td>363</td>
<td>54.0</td>
</tr>
<tr>
<td>433.milc</td>
<td>84.5</td>
<td>109</td>
<td>85.2</td>
<td>108</td>
<td>85.0</td>
<td>108</td>
<td>84.5</td>
<td>109</td>
<td>85.2</td>
<td>108</td>
<td>85.0</td>
<td>108</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>44.3</td>
<td>205</td>
<td>44.3</td>
<td>205</td>
<td>44.4</td>
<td>205</td>
<td>44.3</td>
<td>205</td>
<td>44.3</td>
<td>205</td>
<td>44.4</td>
<td>205</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>108</td>
<td>65.8</td>
<td>108</td>
<td>66.1</td>
<td>108</td>
<td>66.1</td>
<td>108</td>
<td>65.8</td>
<td>108</td>
<td>66.1</td>
<td>108</td>
<td>66.1</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>35.3</td>
<td>339</td>
<td>33.8</td>
<td>353</td>
<td>33.1</td>
<td>361</td>
<td>35.3</td>
<td>339</td>
<td>33.8</td>
<td>353</td>
<td>33.1</td>
<td>361</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>87.5</td>
<td>107</td>
<td>86.5</td>
<td>109</td>
<td>86.8</td>
<td>108</td>
<td>87.5</td>
<td>107</td>
<td>86.5</td>
<td>109</td>
<td>86.8</td>
<td>108</td>
</tr>
<tr>
<td>444.namd</td>
<td>222</td>
<td>36.2</td>
<td>221</td>
<td>36.3</td>
<td>221</td>
<td>36.3</td>
<td>217</td>
<td>36.9</td>
<td>217</td>
<td>36.9</td>
<td>217</td>
<td>36.9</td>
</tr>
<tr>
<td>447.dealII</td>
<td>144</td>
<td>79.4</td>
<td>145</td>
<td>79.1</td>
<td>144</td>
<td>79.3</td>
<td>144</td>
<td>79.4</td>
<td>145</td>
<td>79.1</td>
<td>144</td>
<td>79.3</td>
</tr>
<tr>
<td>450.soplex</td>
<td>156</td>
<td>53.6</td>
<td>156</td>
<td>53.4</td>
<td>155</td>
<td>53.7</td>
<td>156</td>
<td>53.6</td>
<td>156</td>
<td>53.4</td>
<td>155</td>
<td>53.7</td>
</tr>
<tr>
<td>453.povray</td>
<td>75.0</td>
<td>71.0</td>
<td>76.2</td>
<td>69.8</td>
<td>76.2</td>
<td>69.8</td>
<td>66.5</td>
<td>80.1</td>
<td>66.5</td>
<td>80.0</td>
<td>66.5</td>
<td>79.9</td>
</tr>
<tr>
<td>454.calculix</td>
<td>108</td>
<td>76.1</td>
<td>109</td>
<td>75.7</td>
<td>108</td>
<td>76.1</td>
<td>107</td>
<td>77.3</td>
<td>107</td>
<td>77.0</td>
<td>107</td>
<td>76.9</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>127</td>
<td>83.4</td>
<td>127</td>
<td>83.5</td>
<td>127</td>
<td>83.4</td>
<td>125</td>
<td>84.6</td>
<td>125</td>
<td>84.6</td>
<td>125</td>
<td>84.5</td>
</tr>
<tr>
<td>465.tonto</td>
<td>152</td>
<td>64.6</td>
<td>153</td>
<td>64.5</td>
<td>153</td>
<td>64.5</td>
<td>138</td>
<td>71.0</td>
<td>138</td>
<td>71.1</td>
<td>139</td>
<td>71.0</td>
</tr>
<tr>
<td>470.lbm</td>
<td>72.6</td>
<td>189</td>
<td>72.5</td>
<td>189</td>
<td>72.6</td>
<td>189</td>
<td>72.6</td>
<td>189</td>
<td>72.5</td>
<td>189</td>
<td>72.6</td>
<td>189</td>
</tr>
<tr>
<td>481.wrf</td>
<td>88.1</td>
<td>127</td>
<td>88.0</td>
<td>127</td>
<td>88.0</td>
<td>127</td>
<td>88.1</td>
<td>127</td>
<td>88.0</td>
<td>127</td>
<td>88.0</td>
<td>127</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>194</td>
<td>101</td>
<td>195</td>
<td>100</td>
<td>195</td>
<td>100</td>
<td>194</td>
<td>101</td>
<td>195</td>
<td>100</td>
<td>195</td>
<td>100</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:
Sysinfo program /home/SPECcpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on TX1330M2 Tue Dec 1 14:55:37 2015

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

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
SPEC CFP2006 Result

Fujitsu
PRIMERGY TX1330 M2, Intel Xeon E3-1230 v5, 3.40 GHz

SPECfp2006 = 96.9
SPECfp_base2006 = 94.8

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

Test date: Dec-2015
Hardware Availability: Feb-2016
Software Availability: Sep-2015

Platform Notes (Continued)

model name : Intel(R) Xeon(R) CPU E3-1230 v5 @ 3.40GHz
  1 "physical id"s (chips)
  8 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 4
siblings : 8
  physical 0: cores 0 1 2 3
cache size : 8192 KB

From /proc/meminfo
  MemTotal: 65902000 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

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

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

uname -a:
  Linux TX1330M2 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
  (9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 5 Dec 1 10:33

SPEC is set to: /home/SPECcpu2006
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda3 xfs 237G 21G 217G 9% /home

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.

Continued on next page
# SPEC CFP2006 Result

## Fujitsu

**PRIMERGY TX1330 M2, Intel Xeon E3-1230 v5, 3.40 GHz**

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>96.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>94.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2006 license</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Tested by</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Test date</td>
<td>Dec-2015</td>
</tr>
<tr>
<td>Hardware Availability</td>
<td>Feb-2016</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Sep-2015</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

- **BIOS FUJITSU // American Megatrends Inc. V5.0.0.11 R1.1.0 for D3373-A1x**
- **Memory:**
  - 4x SK Hynix HMA82GU7MFR8N-TF 16 GB 2 rank 2133 MHz

(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 = "4"

- 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](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`
- 434.zeusmp: `-DSPEC_CPU_LP64 -nofor_main`
- 435.gromacs: `-DSPEC_CPU_LP64 -nofor_main`
- 436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
- 437.leslie3d: `-DSPEC_CPU_LP64`
- 444.namd: `-DSPEC_CPU_LP64 -nofor_main`
- 447.dealII: `-DSPEC_CPU_LP64`

Continued on next page
SPEC CFP2006 Result

Fujitsu
PRIMERGY TX1330 M2, Intel Xeon E3-1230 v5, 3.40 GHz

SPECfp2006 = 96.9
SPECfp_base2006 = 94.8

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

Test date: Dec-2015
Hardware Availability: Feb-2016
Software Availability: Sep-2015

Base Portability Flags (Continued)

450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64 -nofor_main
463.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 -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

<table>
<thead>
<tr>
<th>Benchmarks</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>C benchmarks:</td>
<td></td>
</tr>
<tr>
<td>433.milc: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>470.lbm: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>C++ benchmarks:</td>
<td></td>
</tr>
<tr>
<td>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-llp32</td>
<td></td>
</tr>
<tr>
<td>447.dealII: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>450.soplex: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>Fortran benchmarks:</td>
<td></td>
</tr>
<tr>
<td>410.bwaves: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>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) -unroll12 -inline-level=0 -scalar-rep-</td>
<td></td>
</tr>
<tr>
<td>434.zeusmp: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>437.leslie3d: basepeak = yes</td>
<td></td>
</tr>
<tr>
<td>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) -unroll12 -inline-level=0 -opt-prefetch -parallel</td>
<td></td>
</tr>
<tr>
<td>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 -opt-malloc-options=3 -auto -unroll14</td>
<td></td>
</tr>
</tbody>
</table>

Benchmarks using both Fortran and C:
Fujitsu
PRIMERGY TX1330 M2, Intel Xeon E3-1230 v5, 3.40 GHz

SPECfp2006 = 96.9
SPECfp_base2006 = 94.8

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu
Test date: Dec-2015
Hardware Availability: Feb-2016
Software Availability: Sep-2015

Peak Optimization Flags (Continued)

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.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 29 December 2015.