**Fujitsu**

PRIMERGY CX2550 M2, Intel Xeon E5-2623 v4, 2.60 GHz

<table>
<thead>
<tr>
<th>SPECfp_rate2006 = 366</th>
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<tbody>
<tr>
<td>SPECfp_rate_base2006 = 359</td>
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</table>

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

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>16</td>
<td>316</td>
</tr>
<tr>
<td>416.gamess</td>
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<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>435.gromacs</td>
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<td>436.cactusADM</td>
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<td>443</td>
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<tr>
<td>437.leslie3d</td>
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<tr>
<td>444.namd</td>
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<tr>
<td>447.dealII</td>
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<td>450.soplex</td>
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<tr>
<td>453.povray</td>
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<td>454.calculix</td>
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<tr>
<td>459.GemsFDTD</td>
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</tr>
<tr>
<td>465.tonto</td>
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<td>517</td>
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<tr>
<td>470.lbm</td>
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<tr>
<td>481.wrf</td>
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</tr>
<tr>
<td>482.sphinx3</td>
<td>16</td>
<td>517</td>
</tr>
</tbody>
</table>

**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2623 v4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.20 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2600</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>8 cores, 2 chips, 4 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1,2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

**Software**

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 12 SP1 (x86_64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kernel:</td>
<td>3.12.49-11-default</td>
</tr>
<tr>
<td>Compiler:</td>
<td>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</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>xfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>
## SPEC CFP2006 Result

**Fujitsu**

PRIMERGY CX2550 M2, Intel Xeon E5-2623 v4, 2.60 GHz

| SPECf_rate2006 | 366 |
| SPECfp_rate_base2006 | 359 |

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

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

L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem: 1 x SATA, 1000 GB, 7200 RPM
Other Hardware: None

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base</th>
<th>Ratio</th>
<th>Peak</th>
<th>Ratio</th>
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<tbody>
<tr>
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<td>601</td>
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<td>416.gamess</td>
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<td>990</td>
<td>316</td>
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<td>369</td>
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<td>436.cactusADM</td>
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<td>442</td>
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<td>16</td>
<td>616</td>
<td>244</td>
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<td></td>
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<td>444.namd</td>
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<td>506</td>
<td>254</td>
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<td>447.dealII</td>
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<td>356</td>
<td>515</td>
<td>354</td>
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<td>465.tonto</td>
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<td>444</td>
<td>354</td>
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<tr>
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<td>473</td>
<td>465</td>
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<td>481.wrf</td>
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<td>414</td>
<td>431</td>
<td>415</td>
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</tr>
<tr>
<td>482.sphinx3</td>
<td>16</td>
<td>980</td>
<td>318</td>
<td>980</td>
<td></td>
</tr>
</tbody>
</table>

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

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"

### Platform Notes

BIOS configuration:
Energy Performance = Performance
Utilization Profile = Unbalanced

Continued on next page
**Platform Notes (Continued)**

- QPI snoop mode: Early Snoop
- COD Enable = Disabled, Early Snoop = Enabled, Home Snoop Dir OSB = Disabled
- CPU C1E Support = Disabled
- Sysinfo program: /home/SPECcpu2006/config/sysinfo.rev6914
- $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1

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 E5-2623 v4 @ 2.60GHz
- 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 0 1 2 3
  - physical 1: cores 0 1 2 3
- cache size: 10240 KB

From /proc/meminfo

- MemTotal: 264322708 KB
- HugePages_Total: 0
- Hugepagesize: 2048 KB

From /proc/meminfo

- /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.

From /proc/cpuinfo

- 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

Continued on next page
SPEC CFP2006 Result

Fujitsu
PRIMERGY CX2550 M2, Intel Xeon E5-2623 v4, 2.60 GHz

SPECfp_rate2006 = 366
SPECfp_rate_base2006 = 359

CPU2006 license: 19
Test sponsor: Fujitsu
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Platform Notes (Continued)

run-level 3 Jul 27 12:45 last=5

SPEC is set to: /home/SPECcpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 890G 19G 871G 3% /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.

BIOS FUJITSU // American Megatrends Inc. V5.0.0.11 R1.4.0 for D3343-B1x 03/17/2016
Memory:
16x Hyundai Electronics (Hynix) HMA42GR7AFR4N-UH 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:
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"

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
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
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
Fujitsu
PRIMERGY CX2550 M2, Intel Xeon E5-2623 v4, 2.60 GHz

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

SPEC CFP2006 Result
SPECfp_rate2006 = 366
SPECfp_rate_base2006 = 359

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

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.games: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zesusp: -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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc   -m64

C++ benchmarks:
icpc  -m64

Fortran benchmarks:
ifort  -m64

Continued on next page
**SPEC CFP2006 Result**

**Fujitsu**

PRIMERGY CX2550 M2, Intel Xeon E5-2623 v4, 2.60 GHz

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Tested by: Fujitsu  
Test date: Jul-2016  
Hardware Availability: Apr-2016  
Software Availability: Sep-2015

---

**Peak Compiler Invocation (Continued)**

Benchmarks using both Fortran and C:

```bash
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)  
  -ip0(pass 2)  -O3(pass 2)  -no-prec-div(pass 2)  
  -par-num-threads=1(pass 1)  -opt-mem-layout-trans=3(pass 2)  
  -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)  
  -ip0(pass 2)  -O3(pass 2)  -no-prec-div(pass 2)  
  -par-num-threads=1(pass 1)  -opt-mem-layout-trans=3(pass 2)  
  -prof-use(pass 2)  -unroll4  -ansi-alias

Fortran benchmarks:

- 410.bwaves: basepeak = yes
- 416.gamess:  -xCORE-AVX2(pass 2)  -prof-gen:threadsafe(pass 1)  
  -ip0(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

---

Continued on next page
Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

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) -unroll4 -auto
          -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -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) -opt-mem-layout-trans=3(pass 2)
          -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevB.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-BDW-RevB.xml