**Fujitsu**

PRIMERGY BX2560 M2, Intel Xeon E5-2609 v4, 1.70 GHz

**SPECfp®2006 =** 71.3

**SPECfp_base2006 =** 69.5

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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>22.8</td>
<td>447</td>
</tr>
<tr>
<td>416.gamess</td>
<td>21.4</td>
<td>474</td>
</tr>
<tr>
<td>433.milc</td>
<td>50.9</td>
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<tr>
<td>434.zeusmp</td>
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<tr>
<td>435.gromacs</td>
<td>30.8</td>
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<tr>
<td>436.cactusADM</td>
<td></td>
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<tr>
<td>437.leslie3d</td>
<td>201</td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>15.5, 15.0</td>
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</tr>
<tr>
<td>447.dealII</td>
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<td>454.calculix</td>
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<td>459.GemsFDTD</td>
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<td></td>
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<tr>
<td>465.tonto</td>
<td>29.8, 27.2</td>
<td></td>
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<tr>
<td>470.lbm</td>
<td>63.6</td>
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<tr>
<td>481.wrf</td>
<td>50.7</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E5-2609 v4
- **CPU Characteristics:**
  - **CPU MHz:** 1700
  - **FPU:** Integrated
  - **CPU(s) enabled:** 16 cores, 2 chips, 8 cores/chip
  - **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)
Fujitsu

PRIMERGY BX2560 M2, Intel Xeon E5-2609 v4, 1.70 GHz

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu
L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None
L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None

Results Table

<table>
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<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
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<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
</tr>
<tr>
<td>410.bwaves</td>
<td>32.6</td>
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<td>482.sphinx3</td>
<td>383</td>
<td>50.8</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 Directory Snoop with OSB
COD Enable = Disabled, Early Snoop = Disabled, Home Snoop Dir OSB = Enabled
CPU C1E Support = Disabled
Sysinfo program /home/SPECcpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-w3cw Tue Jul 12 01:02:12 2016

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Fujitsu
PRIMERGY BX2560 M2, Intel Xeon E5-2609 v4, 1.70 GHz

SPECfp2006 = 71.3
SPECfp_base2006 = 69.5

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

Test date: Jul-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 E5-2609 v4 @ 1.70GHz
  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 : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal:       264519264 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:
Linux linux-w3cw 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 11 16:02 last=5

SPEC is set to: /home/SPECcpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/md126p3  xfs  424G  104G  320G  25% /home

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**SPEC CFP2006 Result**

**Fujitsu**

PRIMERGY BX2560 M2, Intel Xeon E5-2609 v4, 1.70 GHz

| SPECfp2006 = | 71.3 |
| SPECfp_base2006 = | 69.5 |

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

**Platform Notes (Continued)**

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 D3320-B1x 03/17/2016  
Memory:  
8x Micron Technology 36ASF2G72PZ-2G3A3 16 GB 2 rank 1866 MHz  
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 1866 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 = "16"

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

Continued on next page
SPEC CFP2006 Result

Fujitsu  
PRIMERGY BX2560 M2, Intel Xeon E5-2609 v4, 1.70 GHz

SPECfp2006 = 71.3
SPECfp_base2006 = 69.5

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

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

Base Portability Flags (Continued)

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 -nofor_main
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64 -nofor_main
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 -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 BX2560 M2, Intel Xeon E5-2609 v4, 1.70 GHz

SPEC CFP2006 Result

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Hardware Availability: Apr-2016
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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:threadsafepass 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:threadsafepass 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:threadsafepass 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:threadsafepass 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:threadsafepass 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

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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
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

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

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