Fujitsu
PRIMERGY BX2580 M2, Intel Xeon E5-2640 v4, 2.40 GHz

SPECl®2006 = 68.1
SPECl_base2006 = 64.8

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

Hardware
CPU Name: Intel Xeon E5-2640 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
CPU MHZ: 2400
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 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
L3 Cache: 25 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

Software
Operating System: SUSE Linux Enterprise Server 12 SP1 (x86_64)
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.2

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

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
SPEC CINT2006 Result

**Fujitsu**

PRIMERGY BX2580 M2, Intel Xeon E5-2640 v4, 2.40 GHz

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

**SPECint2006 =** 68.1
**SPECint_base2006 =** 64.8

---

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>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>243</td>
<td>40.3</td>
<td>243</td>
<td>40.1</td>
<td>245</td>
<td>39.9</td>
<td>225</td>
<td>43.5</td>
<td>223</td>
<td>43.8</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>394</td>
<td>24.5</td>
<td>394</td>
<td>24.5</td>
<td>395</td>
<td>24.5</td>
<td>396</td>
<td>24.4</td>
<td>390</td>
<td>24.8</td>
</tr>
<tr>
<td>403.mcf</td>
<td>216</td>
<td>37.2</td>
<td>216</td>
<td>37.3</td>
<td>216</td>
<td>37.3</td>
<td>216</td>
<td>37.2</td>
<td>216</td>
<td>37.3</td>
</tr>
<tr>
<td>429.gcc</td>
<td>141</td>
<td>66.6</td>
<td>139</td>
<td>65.4</td>
<td>137</td>
<td>66.4</td>
<td>139</td>
<td>65.6</td>
<td>137</td>
<td>66.4</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>357</td>
<td>29.4</td>
<td>356</td>
<td>29.5</td>
<td>356</td>
<td>29.5</td>
<td>357</td>
<td>29.4</td>
<td>356</td>
<td>29.5</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>112</td>
<td>83.0</td>
<td>112</td>
<td>83.1</td>
<td>113</td>
<td>82.4</td>
<td>112</td>
<td>83.0</td>
<td>112</td>
<td>83.1</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>359</td>
<td>33.7</td>
<td>359</td>
<td>33.7</td>
<td>359</td>
<td>33.7</td>
<td>354</td>
<td>34.1</td>
<td>355</td>
<td>34.1</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.89</td>
<td>5320</td>
<td>3.89</td>
<td>5400</td>
<td>3.89</td>
<td>5320</td>
<td>3.89</td>
<td>5400</td>
<td>3.89</td>
<td>5410</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>400</td>
<td>55.4</td>
<td>401</td>
<td>55.2</td>
<td>399</td>
<td>55.4</td>
<td>400</td>
<td>55.4</td>
<td>401</td>
<td>55.2</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>177</td>
<td>35.3</td>
<td>178</td>
<td>35.1</td>
<td>178</td>
<td>35.1</td>
<td>125</td>
<td>50.0</td>
<td>126</td>
<td>49.7</td>
</tr>
<tr>
<td>473.astar</td>
<td>195</td>
<td>36.0</td>
<td>195</td>
<td>36.0</td>
<td>195</td>
<td>36.1</td>
<td>196</td>
<td>35.7</td>
<td>194</td>
<td>36.1</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>94.3</td>
<td>73.2</td>
<td>94.3</td>
<td>73.2</td>
<td>96.1</td>
<td>71.8</td>
<td>83.8</td>
<td>82.3</td>
<td>83.5</td>
<td>82.7</td>
</tr>
</tbody>
</table>

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

---

Submit Notes

The config file option 'submit' was used.

---

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-rzz5 Mon Jul 11 11:40:01 2016

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 E5-2640 v4 @ 2.40GHz
- 2 "physical id"s (chips)
- 40 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The Continued on next page
Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 10
siblings : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB

From /proc/meminfo
MemTotal: 264516260 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 Jul 11 11:39 last=5

SPEC is set to: /home/SPECcpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 331G 74G 257G 23% /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 D3321-B1x
03/17/2016
Memory:
Fujitsu
PRIMERGY BX2580 M2, Intel Xeon E5-2640 v4, 2.40 GHz

SPECint2006 = 68.1
SPECint_base2006 = 64.8

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

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

Platform Notes (Continued)
16x Samsung M393A2G40EB1-CRC 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,scatter"
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"
OMP_NUM_THREADS = "20"

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

Base Portability Flags
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.xml: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags
C benchmarks:
   -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

Continued on next page
## SPEC CINT2006 Result

<table>
<thead>
<tr>
<th>Fujitsu PRIMERGY BX2580 M2, Intel Xeon E5-2640 v4, 2.40 GHz</th>
<th>SPECint2006 = 68.1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SPECint_base2006 = 64.8</td>
</tr>
</tbody>
</table>

### Base Optimization Flags (Continued)

C++ benchmarks:
- -xCORE-AVX2
- -ipo
- -O3
- -no-prec-div
- -opt-prefetch
- -auto-p32
- -Wl,-z,muldefs
- -L/sh
- -lsmartheap64

### Base Other Flags

C benchmarks:
- 403.gcc: -Dalloca=_alloca

### Peak Compiler Invocation

C benchmarks (except as noted below):
- icc  -m64

- 400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):
- icpc  -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

- 473.astar: icpc  -m64

### Peak Portability Flags

- 400.perlbench: -D_FILE_OFFSET_BITS=64  -DSPEC_CPU_LINUX_IA32
- 401.bzip2: -DSPEC_CPU_LP64
- 403.gcc: -DSPEC_CPU_LP64
- 429.mcf: -DSPEC_CPU_LP64
- 445.gobmk: -DSPEC_CPU_LP64
- 456.hmmer: -DSPEC_CPU_LP64
- 458.sjeng: -DSPEC_CPU_LP64
- 462.libquantum: -DSPEC_CPU_LP64  -DSPEC_CPU_LINUX
- 464.h264ref: -DSPEC_CPU_LP64
- 471.omnetpp: -D_FILE_OFFSET_BITS=64
- 473.astar: -DSPEC_CPU_LP64
- 483.xalancbmk: -D_FILE_OFFSET_BITS=64  -DSPEC_CPU_LINUX

### Peak Optimization Flags

C benchmarks:
Fujitsu
PRIMERGY BX2580 M2, Intel Xeon E5-2640 v4, 2.40 GHz

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

SPECint2006 = 68.1
SPECint_base2006 = 64.8

Peak Optimization Flags (Continued)

400.perlbench: -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) -opt-prefetch
-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilkp32
-opt-prefetch -ansi-alias

403.gcc: basepeak = yes

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: basepeak = yes

456.hmmer: basepeak = yes

458.sjeng: -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) -unroll14

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -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)
-opt-ra-region-strategy=block
-ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca
**Fujitsu**

PRIMERGY BX2580 M2, Intel Xeon E5-2640 v4, 2.40 GHz

<table>
<thead>
<tr>
<th>SPECint2006</th>
<th>68.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>64.8</td>
</tr>
</tbody>
</table>

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

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


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

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

SPEC and SPECint 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 23 August 2016.