### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2697 v4</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.60 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2300</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>36 cores, 2 chips, 18 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>
<tr>
<td>L3 Cache</td>
<td>45 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>1 x SATA, 500 GB, 7200 RPM</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>SUSE Linux Enterprise Server 12 SP1 (x86_64)</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 16.0.0.101 of Intel C++ Studio XE</td>
</tr>
<tr>
<td>for Linux</td>
<td></td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 5 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>

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### SPECint Results

- **SPECint®2006**: 72.9
- **SPECint_base2006**: 70.8

---

**Fujitsu**

PRIMERGY RX2560 M2, Intel Xeon E5-2697 v4, 2.30 GHz

**CPU2006 license**: 19

**Test sponsor**: Fujitsu

**Tested by**: Fujitsu

**Test date**: May-2016

**Hardware Availability**: Apr-2016

**Software Availability**: Sep-2015
Spec CINT2006 Result

Fujitsu
PRIMERGY RX2560 M2, Intel Xeon E5-2697 v4, 2.30 GHz

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

SPECint2006 = 72.9
SPECint_base2006 = 70.8

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

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>237</td>
<td>41.2</td>
<td>235</td>
<td>41.6</td>
<td>238</td>
<td>41.5</td>
<td>216</td>
<td>45.3</td>
<td>216</td>
<td>45.3</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>383</td>
<td>25.2</td>
<td>386</td>
<td>25.0</td>
<td>383</td>
<td>25.2</td>
<td>383</td>
<td>25.2</td>
<td>205</td>
<td>39.2</td>
</tr>
<tr>
<td>403.mcf</td>
<td>213</td>
<td>37.9</td>
<td>213</td>
<td>37.8</td>
<td>213</td>
<td>37.8</td>
<td>206</td>
<td>39.2</td>
<td>205</td>
<td>39.2</td>
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<tr>
<td>429.gcc</td>
<td>141</td>
<td>64.5</td>
<td>141</td>
<td>64.8</td>
<td>140</td>
<td>65.4</td>
<td>141</td>
<td>64.5</td>
<td>141</td>
<td>64.8</td>
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<tr>
<td>445.gobmk</td>
<td>342</td>
<td>30.6</td>
<td>342</td>
<td>30.7</td>
<td>342</td>
<td>30.7</td>
<td>342</td>
<td>30.7</td>
<td>342</td>
<td>30.7</td>
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<tr>
<td>456.hmmer</td>
<td>107</td>
<td>86.8</td>
<td>107</td>
<td>87.1</td>
<td>107</td>
<td>86.8</td>
<td>107</td>
<td>86.8</td>
<td>107</td>
<td>86.8</td>
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<tr>
<td>458.sjeng</td>
<td>338</td>
<td>35.8</td>
<td>338</td>
<td>35.8</td>
<td>339</td>
<td>35.7</td>
<td>335</td>
<td>36.2</td>
<td>335</td>
<td>36.1</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>2.60</td>
<td>7970</td>
<td>2.61</td>
<td>7940</td>
<td>2.62</td>
<td>7900</td>
<td>2.60</td>
<td>7970</td>
<td>2.61</td>
<td>7940</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>380</td>
<td>58.3</td>
<td>381</td>
<td>58.1</td>
<td>380</td>
<td>58.2</td>
<td>380</td>
<td>58.3</td>
<td>381</td>
<td>58.1</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>128</td>
<td>48.9</td>
<td>128</td>
<td>49.0</td>
<td>113</td>
<td>55.1</td>
<td>114</td>
<td>55.1</td>
<td>113</td>
<td>55.1</td>
</tr>
<tr>
<td>473.astar</td>
<td>190</td>
<td>37.0</td>
<td>192</td>
<td>36.5</td>
<td>191</td>
<td>36.8</td>
<td>190</td>
<td>37.0</td>
<td>192</td>
<td>36.5</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>88.4</td>
<td>78.1</td>
<td>87.8</td>
<td>78.5</td>
<td>87.7</td>
<td>78.7</td>
<td>81.0</td>
<td>85.2</td>
<td>79.8</td>
<td>86.5</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 RX2560M2 Thu May 12 08:47:39 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 E5-2697 v4 @ 2.30GHz
  2 "physical id"s (chips)
  72 "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 : 18
  siblings : 36
  physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  cache size : 46080 KB

From /proc/meminfo
  MemTotal:       264313116 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 5 May 12 08:46

SPEC is set to: /home/SPECcpu2006
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda3      xfs   1.8T  4.0G  1.8T  1% /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 R1.6.0 for D3289-B1x 03/11/2016
Memory:

Continued on next page
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Platform Notes (Continued)
16x Hynix Semiconductor HMA42GR7AFR4N-UH 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,scatter"
LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"
OMP_NUM_THREADS = "36"

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.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.hmmer: -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

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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:

Continued on next page
Fujitsu
PRIMERGY RX2560 M2, Intel Xeon E5-2697 v4, 2.30 GHz

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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: basepeak = yes

403.gcc: `xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-1lp32`

429.mcf: basepeak = yes

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) -unroll4`

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: basepeak = yes

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`

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
Fujitsu
PRIMERGY RX2560 M2, Intel Xeon E5-2697 v4, 2.30 GHz

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<tr>
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</tr>
</thead>
</table>

CPU2006 license: 19  Test date: May-2016
Test sponsor: Fujitsu  Hardware Availability: Apr-2016
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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

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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 14 June 2016.