Fujitsu
PRIMERGY RX2530 M2, Intel Xeon E5-2690 v4, 2.60 GHz

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>71.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>68.4</td>
</tr>
</tbody>
</table>

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

Hardware

<table>
<thead>
<tr>
<th>CPU Name</th>
<th>Intel Xeon E5-2690 v4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.50 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>28 cores, 2 chips, 14 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>35 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, 1000 GB, 7200 RPM</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</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>Compiler</td>
<td>C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux</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 3 (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>
## 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>240</td>
<td>40.8</td>
<td>238</td>
<td>41.0</td>
<td>241</td>
<td>40.6</td>
<td>219</td>
<td>44.7</td>
<td>219</td>
<td>44.7</td>
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<tr>
<td>401.bzip2</td>
<td>390</td>
<td>24.8</td>
<td>390</td>
<td>24.8</td>
<td>390</td>
<td>24.7</td>
<td>384</td>
<td>25.1</td>
<td>384</td>
<td>25.1</td>
</tr>
<tr>
<td>403.gcc</td>
<td>213</td>
<td>37.9</td>
<td>212</td>
<td>37.9</td>
<td>213</td>
<td>37.8</td>
<td>213</td>
<td>37.9</td>
<td>213</td>
<td>37.8</td>
</tr>
<tr>
<td>429.mcf</td>
<td>144</td>
<td>63.4</td>
<td>146</td>
<td>62.7</td>
<td>143</td>
<td>64.0</td>
<td>142</td>
<td>64.1</td>
<td>142</td>
<td>64.1</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>348</td>
<td>30.1</td>
<td>348</td>
<td>30.2</td>
<td>348</td>
<td>30.2</td>
<td>348</td>
<td>30.2</td>
<td>348</td>
<td>30.2</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>110</td>
<td>85.1</td>
<td>110</td>
<td>85.2</td>
<td>110</td>
<td>85.1</td>
<td>110</td>
<td>85.1</td>
<td>110</td>
<td>85.1</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>348</td>
<td>34.8</td>
<td>348</td>
<td>34.7</td>
<td>348</td>
<td>34.8</td>
<td>344</td>
<td>35.1</td>
<td>344</td>
<td>35.1</td>
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<tr>
<td>462.libquantum</td>
<td>2.81</td>
<td>7380</td>
<td>2.88</td>
<td>7200</td>
<td>2.88</td>
<td>7180</td>
<td>2.81</td>
<td>7380</td>
<td>2.88</td>
<td>7200</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>382</td>
<td>58.0</td>
<td>383</td>
<td>57.8</td>
<td>383</td>
<td>57.8</td>
<td>382</td>
<td>58.0</td>
<td>383</td>
<td>57.8</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>143</td>
<td>43.7</td>
<td>142</td>
<td>44.0</td>
<td>143</td>
<td>43.8</td>
<td>111</td>
<td>56.1</td>
<td>112</td>
<td>56.0</td>
</tr>
<tr>
<td>473.astar</td>
<td>193</td>
<td>36.4</td>
<td>194</td>
<td>36.2</td>
<td>194</td>
<td>36.3</td>
<td>193</td>
<td>36.4</td>
<td>193</td>
<td>36.3</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>93.6</td>
<td>73.7</td>
<td>93.6</td>
<td>73.7</td>
<td>93.2</td>
<td>74.0</td>
<td>80.8</td>
<td>85.4</td>
<td>80.9</td>
<td>85.3</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
- HWPM = OOB-mode
- Sysinfo program /home/SPECcpu2006/config/sysinfo.rev6914

$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on RX2530M2 Tue May 10 15:00:11 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 E5-2690 v4@ 2.60GHz
- 2 "physical id"s (chips)
- 56 "processors"

Continued on next page
Fujitsu
PRIMERGY RX2530 M2, Intel Xeon E5-2690 v4, 2.60 GHz

SPECint2006 = 71.5
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Platform Notes (Continued)
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 : 14
siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB

From /proc/meminfo
MemTotal: 264515072 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
SuSE-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 May 10 14:59 last=5

SPEC is set to: /home/SPECcpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/md126p1 xfs 391G 37G 354G 10% /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 D3279-B1x
03/11/2016
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Platform Notes (Continued)

Memory:
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 = "28"

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.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
SPEC CINT2006 Result

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

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

Base Optimization Flags

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

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

Peak Optimization Flags

C benchmarks:

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-ilp32 -opt-prefetch -ansi-alias

403.gcc: basepeak = yes

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

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) -opt-prefetch -ansi-alias -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 -W1,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -W1,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -W1,-z,muldefs -L/sh -lsmartheap

Peak Other Flags

C benchmarks:

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SPEC CINT2006 Result

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Software Availability: Sep-2015

Peak Other Flags (Continued)

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

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

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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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