Fujitsu

PRIMERGY RX2530 M2, Intel Xeon E5-2609 v4, 1.70 GHz

SPECint\_rate2006 = 222
SPECint\_rate\_base2006 = 214

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>19</th>
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</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Test date:</td>
<td>Oct-2016</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Apr-2016</td>
</tr>
</tbody>
</table>

**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2609 v4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td></td>
</tr>
<tr>
<td>CPU MHZ:</td>
<td>1700</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>8 cores, 1 chip, 8 cores/chip</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>20 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>128 GB (8 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>2 x SATA, 2.0TB, 7200RPM</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 3.12.49-11-default</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>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>
<tr>
<td>Base Pointers:</td>
<td>32-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>
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</tbody>
</table>
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>8</td>
<td>510</td>
<td>153</td>
<td>510</td>
<td>153</td>
<td>8</td>
<td>423</td>
<td>185</td>
<td>423</td>
<td>185</td>
<td>425</td>
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<tr>
<td>401.bzip2</td>
<td>8</td>
<td>808</td>
<td>95.5</td>
<td>809</td>
<td>95.4</td>
<td>8</td>
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<td>403.mcf</td>
<td>8</td>
<td>389</td>
<td>166</td>
<td>390</td>
<td>165</td>
<td>8</td>
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<td>429.gcc</td>
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<td>722</td>
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<td>456.hmmer</td>
<td>8</td>
<td>249</td>
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<td>458.sjeng</td>
<td>8</td>
<td>727</td>
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<td>133</td>
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<tr>
<td>462.libquantum</td>
<td>8</td>
<td>87.1</td>
<td>1900</td>
<td>87.3</td>
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<tr>
<td>464.h264ref</td>
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<td>707</td>
<td>251</td>
<td>706</td>
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<td>716</td>
<td>247</td>
<td>8</td>
<td>684</td>
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<td></td>
<td></td>
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<tr>
<td>471.omnetpp</td>
<td>8</td>
<td>355</td>
<td>141</td>
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<td>341</td>
<td>146</td>
<td>338</td>
<td>148</td>
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<tr>
<td>473.astar</td>
<td>8</td>
<td>458</td>
<td>123</td>
<td>459</td>
<td>122</td>
<td>463</td>
<td>121</td>
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<td>123</td>
<td>459</td>
<td>122</td>
<td>463</td>
<td>121</td>
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<tr>
<td>483.xalancbmk</td>
<td>8</td>
<td>181</td>
<td>305</td>
<td>181</td>
<td>305</td>
<td>181</td>
<td>305</td>
<td>8</td>
<td>181</td>
<td>305</td>
<td>181</td>
<td>305</td>
<td>181</td>
<td>305</td>
</tr>
</tbody>
</table>

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
QPI snoop mode: Home Snoop Dir OSB
COD Enable = Disabled, Early Snoop = Disabled, Home Snoop Dir OSB = Enabled
CPU C1E Support = Disabled
Sysinfo program /home/speccpu-20150812-updated/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-r0cf Wed Oct 26 06:40:47 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 E5-2609 v4 @ 1.70GHz
1 "physical id"s (chips)
Fujitsu

PRIMERGY RX2530 M2, Intel Xeon E5-2609 v4, 1.70 GHz

SPECint_rate2006 = 222
SPECint_rate_base2006 = 214

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

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

Platform Notes (Continued)

8 "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
cache size : 20480 KB

From /proc/meminfo
MemTotal: 131938412 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-r0cf 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 Oct 25 13:34

SPEC is set to: /home/speccpu-20150812-updated
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 1.8T 8.6G 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 D3279-Blx
03/11/2016

Continued on next page
SPEC CINT2006 Result

Fujitsu
PRIMERGY RX2530 M2, Intel Xeon E5-2609 v4, 1.70 GHz

SPECint_rate2006 = 222
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CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Platform Notes (Continued)

Memory:
16x NO DIMM NO DIMM
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 1866 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = */home/speccpu-20150812-updated/libs/32:/home/speccpu-20150812-updated/libs/64:/home/speccpu-20150812-updated/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>

Base Compiler Invocation

C benchmarks:
  icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
C++ benchmarks:
  icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Base Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -D_FILE_OFFSET_BITS=64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
SPEC CINT2006 Result

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

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3 -W1,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

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

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
Peak Portability Flags (Continued)

483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

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) -auto-ilp32

401.bzip2: -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
-auto-ilp32 -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias
-opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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
-auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -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) -unroll2
-ansi-alias

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

473.astar: basepeak = yes

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SPEC CINT2006 Result

Fujitsu

PRIMERGY RX2530 M2, Intel Xeon E5-2609 v4, 1.70 GHz

SPECint_rate2006 = 222
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CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

FS: Fujitsu

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevB.html
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/Fujitsu-Platform-Settings-V1.2-BDW-RevB.xml
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml

Peak Optimization Flags (Continued)

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

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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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