**SPEC® CINT2006 Result**  

**Fujitsu**  
PRIMERGY BX2580 M2, Intel Xeon E5-2697 v4, 2.30 GHz  

**SPECint_rate2006 = 1570**  
**SPECint_rate_base2006 = 1510**  

<table>
<thead>
<tr>
<th>Program</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td><strong>1450</strong></td>
</tr>
<tr>
<td>401.bzip2</td>
<td><strong>1170</strong></td>
</tr>
<tr>
<td>403.gcc</td>
<td><strong>791</strong></td>
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<td>429.mcf</td>
<td><strong>1120</strong></td>
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<td>445.gobmk</td>
<td><strong>1970</strong></td>
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<td>456.hmmer</td>
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<tr>
<td>458.sjeng</td>
<td><strong>2040</strong></td>
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<tr>
<td>462.libquantum</td>
<td><strong>1110</strong></td>
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<td>464.h264ref</td>
<td><strong>1930</strong></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td><strong>1180</strong></td>
</tr>
<tr>
<td>473.astar</td>
<td><strong>1110</strong></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td><strong>1580</strong></td>
</tr>
</tbody>
</table>

**Hardware**  
CPU Name: Intel Xeon E5-2697 v4  
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
CPU MHz: 2300  
FPU: Integrated  
CPU(s) enabled: 36 cores, 2 chips, 18 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: 45 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)  
Disk Subsystem: 1 x SATA, 1000 GB, 7200 RPM  
Other Hardware: None  

**Software**  
Operating System: SUSE Linux Enterprise Server 12 SP1 (x86_64)  
Compiler: CIC++, Version 16.0.0.101 of Intel C++ Studio XE for Linux  
Auto Parallel: No  
File System: xfs  
System State: Run level 3 (multi-user)  
Base Pointers: 32-bit  
Peak Pointers: 32/64-bit  
Other Software: Microquill SmartHeap V10.2  

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

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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>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>72</td>
<td>603</td>
<td>1170</td>
<td>602</td>
<td>1170</td>
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<tr>
<td>401.bzip2</td>
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<td>769</td>
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<td>904</td>
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<td>462.libquantum</td>
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<td>852</td>
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<td>471.onetop</td>
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<td>473.astar</td>
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<td>483.xalancbmk</td>
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<td>1580</td>
<td>315</td>
<td>1580</td>
<td>316</td>
<td>1570</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: Cluster on Die
COD Enable = Enabled, Early Snoop = Disabled, Home Snoop Dir OSB = Disabled
CPU C1E Support = Disabled
Sysinfo program /home/SPECcpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1unning on linux-vaud Fri Jun 24 12:08:12 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)

Continued on next page
Platform Notes (Continued)

72 "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 : 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 : 23040 KB

From /proc/meminfo
   MemTotal:       264312044 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 Jun 24 12:07 last=5

SPEC is set to: /home/SPECcpu2006
   Filesystem  Type Size  Used Avail Use% Mounted on
   /dev/sda3    xfs  331G  4.4G  327G   2% /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 R1.3.0 for D3321-B1x
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Platform Notes (Continued)

02/19/2016
Memory:
16x Micron Technology 36ASF2G72PZ-2G3A3 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD\_LIBRARY\_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/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>

For information about Fujitsu please visit: http://www.fujitsu.com

Base Compiler Invocation

C benchmarks:
\texttt{icc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin}

C++ benchmarks:
\texttt{icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin}

Base Portability Flags

\begin{align*}
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 \\
454.hmmer: & -D\_FILE\_OFFSET\_BITS=64 \\
458.sjeng: & -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
\end{align*}
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Base Optimization Flags

C benchmarks:
- \(-xCORE-AVX2\)
- \(-ipo\)
- \(-O3\)
- \(-no-prec-div\)
- \(-opt-prefetch\)
- \(-opt-mem\text{-layout\_trans}=3\)

C++ benchmarks:
- \(-xCORE-AVX2\)
- \(-ipo\)
- \(-O3\)
- \(-no-prec-div\)
- \(-opt-prefetch\)
- \(-opt-mem\text{-layout\_trans}=3\)
- \(-W1,-z,\text{muldefs} -L/sh -lsmartheap\)

Base Other Flags

C benchmarks:
403.gcc: \(-\text{Dalloca}=_\text{alloca}\)

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: \(-D\_FILE\_OFFSET\_BITS=64\) \(-DSPEC\_CPU\_LP64\) \(-DSPEC\_CPU\_LIN\textsubscript{UX}\_X64\)
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: \(-D\_FILE\_OFFSET\_BITS=64\)

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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) -unroll14 -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) -unroll12 -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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Peak Optimization Flags (Continued)

483.xalancbmk: basepeak = yes

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
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 other inquiries, please contact webmaster@spec.org.

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