Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant ML30 Gen9  
(3.60 GHz, Intel Xeon E3-1270 v5)  

**SPECint®2006** = 76.2  
**SPECint_base2006** = 73.7

<table>
<thead>
<tr>
<th>SPECint®2006</th>
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<td>76.2</td>
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</table>

CPU2006 license: 3  
Test sponsor: HPE  
Test date: Oct-2015  

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
</table>
| CPU Name: Intel Xeon E3-1270 v5  
CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz  
CPU MHz: 3600  
FPU: Integrated  
CPU(s) enabled: 4 cores, 1 chip, 4 cores/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: 8 MB I+D on chip per chip  
Memory: 32 GB (4 x 8 GB 2Rx8 PC4-2133P-U)  
Disk Subsystem: 1 x 1 TB SATA, RAID 0  
Other Cache: None  
Other Hardware: None  

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

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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>86.0</td>
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<td>86.8</td>
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<td>445.gobmk</td>
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<td>34.7</td>
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<td>42.5</td>
<td>167</td>
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<tr>
<td>483.xalancbmk</td>
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<td>96.6</td>
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<td>96.4</td>
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<td>103</td>
<td>67.2</td>
<td>103</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"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

Platform Notes

BIOS Configuration:
Intel Hyperthreading set to Disabled
HP Power Profile set to Custom
HP Power Regulator to HP Static High Performance Mode
Minimum Processor Idle Power Core C-State set to C6 State
Minimum Processor Idle Power Package C-State set to Package C6 (retention) State
Energy/Performance Bias set to Maximum Performance
Collaborative Power Control set to Disabled
Thermal Configuration set to Maximum Cooling
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x Refresh

Sysinfo program /cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-1ree Fri Oct 16 13:40:13 2015

This section contains SUT (System Under Test) info as seen by
Continued on next page
Platform Notes (Continued)

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 E3-1270 v5 @ 3.60GHz
    1 "physical id"s (chips)
    4 "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: 4
    siblings: 4
    physical 0: cores 0 1 2 3
  cache size: 8192 KB

From /proc/meminfo
  MemTotal: 32921696 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12

From /etc/*release* /etc/*version*
  SuSE-release:
    NAME="SLES"
    VERSION="12"
    VERSION_ID="12"
    PATCHLEVEL = 0
    # 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"
    VERSION_ID="12"
    PRETTY_NAME="SUSE Linux Enterprise Server 12"
    ID="sles"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:12"

uname -a:
  Linux linux-1ree 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
  (9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 16 09:48

SPEC is set to: /cpu2006
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda3 btrfs 930G 30G 900G 4% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page
SPEC CINT2006 Result

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Platform Notes (Continued)

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 HP U23 09/24/2015
Memory:
4x UNKNOWN NOT AVAILABLE 8 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 = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "4"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

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
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Test date: Oct-2015
Hardware Availability: Dec-2015
Software Availability: Aug-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
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:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threaddsafe(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:threaddsafe(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
  -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: basepeak = yes

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threaddsafe(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:threaddsafe(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
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**Hardware Availability:** Dec-2015  
**Software Availability:** Aug-2015

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/HP-Platform-Flags-Intel-V1.2-HSW-revE.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/HP-Platform-Flags-Intel-V1.2-HSW-revE.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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