SPEC® CINT2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
Synergy 480 Gen9
(1.80 GHz, Intel Xeon E5-2630L v4)

SPECint®2006 = 59.8
SPECint_base2006 = 56.6

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Test date: Oct-2016
Hardware Availability: Dec-2016
Software Availability: Sep-2016

400.perlbench 88.9
401.bzip2 22.2
403.gcc 33.6
429.mcf 63.5
445.gobmk 25.9
456.hmmer 1.4
458.sjeng 29.4
462.libquantum 28.6
464.h264ref 48.2
471.omnetpp 31.6
473.astar 30.5
483.xalancbmk 64.9

SPECint2006 = 59.8

Hardware
CPU Name: Intel Xeon E5-2630L v4
CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz: 1800
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip
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: 25 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem: 1 x 600 GB 10 K SAS, RAID 0
Other Hardware: None

Software
Operating System: SUSE Linux Enterprise Server 12 (x86_64) SP1, Kernel 3.12.49-11-default
Compiler: C/C++: Version 17.0.0.098 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
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
SPEC CINT2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
Synergy 480 Gen9
(1.80 GHz, Intel Xeon E5-2630L v4)

SPECint2006 = 59.8
SPECint_base2006 = 56.6

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>287</td>
<td>34.0</td>
<td>288</td>
<td>33.9</td>
<td></td>
<td>289</td>
<td>33.8</td>
<td>251</td>
<td>38.9</td>
<td></td>
<td>251</td>
<td>38.9</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>441</td>
<td>21.9</td>
<td>441</td>
<td>21.9</td>
<td></td>
<td>442</td>
<td>21.8</td>
<td>435</td>
<td>22.2</td>
<td></td>
<td>435</td>
<td>22.2</td>
</tr>
<tr>
<td>403.gcc</td>
<td>240</td>
<td>33.6</td>
<td>240</td>
<td>33.6</td>
<td></td>
<td>240</td>
<td>33.6</td>
<td>240</td>
<td>33.6</td>
<td></td>
<td>240</td>
<td>33.6</td>
</tr>
<tr>
<td>429.mcf</td>
<td>144</td>
<td>63.5</td>
<td>143</td>
<td>63.6</td>
<td></td>
<td>145</td>
<td>62.8</td>
<td>144</td>
<td>63.5</td>
<td></td>
<td>143</td>
<td>63.6</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>412</td>
<td>25.5</td>
<td>412</td>
<td>25.5</td>
<td></td>
<td>413</td>
<td>25.4</td>
<td>404</td>
<td>25.9</td>
<td></td>
<td>405</td>
<td>25.9</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>131</td>
<td>71.1</td>
<td>131</td>
<td>71.4</td>
<td></td>
<td>131</td>
<td>71.4</td>
<td>131</td>
<td>71.4</td>
<td></td>
<td>131</td>
<td>71.4</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>423</td>
<td>28.6</td>
<td>425</td>
<td>28.5</td>
<td></td>
<td>424</td>
<td>28.6</td>
<td>421</td>
<td>29.4</td>
<td></td>
<td>421</td>
<td>29.4</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>4.57</td>
<td>4540</td>
<td>4.99</td>
<td>4160</td>
<td></td>
<td>4.69</td>
<td>4420</td>
<td>4.57</td>
<td>4540</td>
<td></td>
<td>4.99</td>
<td>4420</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>459</td>
<td>48.2</td>
<td>459</td>
<td>48.2</td>
<td></td>
<td>460</td>
<td>48.1</td>
<td>459</td>
<td>48.2</td>
<td></td>
<td>459</td>
<td>48.2</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>193</td>
<td>32.4</td>
<td>198</td>
<td>31.6</td>
<td></td>
<td>199</td>
<td>31.4</td>
<td>137</td>
<td>45.8</td>
<td></td>
<td>136</td>
<td>45.8</td>
</tr>
<tr>
<td>473.astar</td>
<td>231</td>
<td>30.4</td>
<td>232</td>
<td>30.3</td>
<td></td>
<td>232</td>
<td>30.3</td>
<td>230</td>
<td>30.5</td>
<td></td>
<td>230</td>
<td>30.5</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>107</td>
<td>64.8</td>
<td>106</td>
<td>64.9</td>
<td></td>
<td>106</td>
<td>65.1</td>
<td>97.9</td>
<td>70.5</td>
<td></td>
<td>97.8</td>
<td>70.6</td>
</tr>
</tbody>
</table>

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
Power Profile set to Custom
Power Regulator to Static High Performance Mode
Minimum Processor Idle Power Core C-State set to C6 State
Minimum Processor Idle Power Package C-State set to No Package State
Energy/Performance Bias set to Maximum Performance
Collaborative Power Control set to Disabled
QPI Snoop Configuration set to Home Snoop
Thermal Configuration set to Maximum Cooling
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x Refresh

Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e88da4e561ed28d7f98696cbe290c1)
runtime on linux-hiyk Mon Oct 17 10:05:06 2016

Continued on next page
Spec CINT2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
Synergy 480 Gen9
(1.80 GHz, Intel Xeon E5-2630L v4)

SPECint2006 = 59.8
SPECint_base2006 = 56.6

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Test date: Oct-2016
Hardware Availability: Dec-2016
Software Availability: Sep-2016

Platform Notes (Continued)

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 E5-2630L v4 @ 1.80GHz
2 "physical id"s (chips)
20 "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 : 10
siblings : 10
physical 0: cores 0 2 3 4 8 9 10 11 12
physical 1: cores 0 2 3 4 8 9 10 11 12
cache size : 25600 KB

From /proc/meminfo
MemTotal: 264548920 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 Oct 17 10:04

SPEC is set to: /home/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 331G 78G 253G 24% /home
Additional information from dmidecode:
Continued on next page
Platform Notes (Continued)

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 HP I37 09/14/2016
Memory:
8x UNKNOWN NOT AVAILABLE
16x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2400 MHz, configured at 2133 MHz

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 256 GB and the dmidecode description should have one line reading as:
16x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2400 MHz, configured at 2133 MHz

General Notes
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh10.2"
OMP_NUM_THREADS = "20"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2

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
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
Synergy 480 Gen9  
(1.80 GHz, Intel Xeon E5-2630L v4)  

SPECint2006 = 59.8  
SPECint_base2006 = 56.6  

CPU2006 license: 3  
Test sponsor: HPE  
Tested by: HPE  

Base Portability Flags (Continued)

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 -qopt-prefetch  
-auto-p32

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh10.2 -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_2017/linux/lib/ia32  
445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32  

C++ benchmarks (except as noted below):
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32  
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: -D_FILE_OFFSET_BITS=64  
456.hmmer: -DSPEC_CPU_LP64

Continued on next page
Hewlett Packard Enterprise
(Test Sponsor: HPE)
Synergy 480 Gen9
(1.80 GHz, Intel Xeon E5-2630L v4)

SPECint2006 = 59.8
SPECint_base2006 = 56.6

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE
Test date: Oct-2016
Hardware Availability: Dec-2016
Software Availability: Sep-2016

Peak Portability Flags (Continued)

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: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -auto-ilp32 -qopt-prefetch

403.gcc: basepeak = yes
429.mcf: basepeak = yes
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2)

456.hmmer: basepeak = yes
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll4

462.libquantum: basepeak = yes
464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-ra-region-strategy=block
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64

Continued on next page
Hewlett Packard Enterprise
(Test Sponsor: HPE)
Synergy 480 Gen9
(1.80 GHz, Intel Xeon E5-2630L v4)

SPECint2006 = 59.8
SPECint_base2006 = 56.6

Peak Optimization Flags (Continued)

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-Wl,-z,muldefs -L/sh10.2 -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/HP-Platform-Flags-Intel-V1.2-HSW-revE.html
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.xml
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Nov 15 16:08:17 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 November 2016.