Hewlett-Packard Company

ProLiant DL580 Gen9
(2.50 GHz, Intel Xeon E7-8867 v3)

SPEClint®2006 = 63.4
SPEClint_base2006 = 61.5

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

SPECint2006 = 63.4
SPECint_base2006 = 61.5

CPU Name: Intel Xeon E7-8867 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 64 cores, 4 chips, 16 cores/chip
CPU(s) orderable: 2, 4 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: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 1 x 400 GB SAS SSD, RAID 0
Other Hardware: None

Operating System: SUSE Linux Enterprise Server 12
Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0
Hewlett-Packard Company
ProLiant DL580 Gen9
(2.50 GHz, Intel Xeon E7-8867 v3)

SPECint2006 = 63.4
SPECint_base2006 = 61.5

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>259</td>
<td>37.8</td>
<td>257</td>
<td>38.0</td>
<td>258</td>
<td>37.9</td>
<td>225</td>
<td>43.4</td>
<td>225</td>
<td>43.4</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>421</td>
<td>22.9</td>
<td>422</td>
<td>22.8</td>
<td>422</td>
<td>22.9</td>
<td>418</td>
<td>23.1</td>
<td>418</td>
<td>23.1</td>
</tr>
<tr>
<td>403.gcc</td>
<td>248</td>
<td>32.5</td>
<td>247</td>
<td>32.6</td>
<td>248</td>
<td>32.5</td>
<td>241</td>
<td>33.4</td>
<td>239</td>
<td>33.3</td>
</tr>
<tr>
<td>429.mcf</td>
<td>170</td>
<td>53.7</td>
<td>172</td>
<td>53.0</td>
<td>172</td>
<td>52.9</td>
<td>170</td>
<td>53.7</td>
<td>169</td>
<td>54.0</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>385</td>
<td>27.2</td>
<td>385</td>
<td>27.2</td>
<td>385</td>
<td>27.3</td>
<td>386</td>
<td>27.2</td>
<td>386</td>
<td>27.2</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>143</td>
<td>65.1</td>
<td>144</td>
<td>65.0</td>
<td>143</td>
<td>65.1</td>
<td>143</td>
<td>65.1</td>
<td>144</td>
<td>65.0</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>378</td>
<td>32.0</td>
<td>378</td>
<td>32.0</td>
<td>378</td>
<td>32.0</td>
<td>375</td>
<td>32.2</td>
<td>376</td>
<td>32.2</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>2.20</td>
<td>9400</td>
<td>2.20</td>
<td>9440</td>
<td>2.23</td>
<td>9280</td>
<td>2.20</td>
<td>9400</td>
<td>2.20</td>
<td>9440</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>505</td>
<td>43.8</td>
<td>505</td>
<td>43.8</td>
<td>506</td>
<td>43.7</td>
<td>505</td>
<td>43.8</td>
<td>505</td>
<td>43.8</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>145</td>
<td>43.3</td>
<td>142</td>
<td>43.9</td>
<td>142</td>
<td>43.9</td>
<td>122</td>
<td>51.3</td>
<td>120</td>
<td>52.0</td>
</tr>
<tr>
<td>473.astar</td>
<td>222</td>
<td>31.6</td>
<td>224</td>
<td>31.3</td>
<td>224</td>
<td>31.3</td>
<td>223</td>
<td>31.4</td>
<td>225</td>
<td>31.2</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>113</td>
<td>61.3</td>
<td>112</td>
<td>61.4</td>
<td>113</td>
<td>61.0</td>
<td>113</td>
<td>60.8</td>
<td>113</td>
<td>61.3</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"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

Platform Notes

BIOS Configuration
Power Profile set to Custom
Power Regulator set 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 Enabled
Thermal Configuration set to Maximum Cooling
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x Refresh
Intel Hyperthreading Options set to Disabled
Sysinfo program /cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on d1580gen9-4-sles12 Wed Apr 29 20:07:39 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
Continued on next page
## Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo

- model name: Intel(R) Xeon(R) CPU E7-8867 v3 @ 2.50GHz
- 4 "physical id"s (chips)
- 64 "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: 16
  - siblings: 16
  - physical 0: cores 0 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  - physical 1: cores 0 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  - physical 2: cores 0 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  - physical 3: cores 0 2 3 4 8 9 10 11 16 17 18 20 24 25 27
- cache size: 46080 KB

From /proc/meminfo

- MemTotal: 529165304 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"
  - PRETTY_NAME="SUSE Linux Enterprise Server 12"
  - ID="sles"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:12"

uname -a:

- Linux dl580gen9-4-sles12 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 Apr 29 19:55

SPEC is set to: /cpu2006

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda3</td>
<td>xfs</td>
<td>371G</td>
<td>367G</td>
<td>3.8G</td>
<td>99%</td>
<td>/</td>
</tr>
</tbody>
</table>

Additional information from dmidecode: Continued on next page
SPEC CINT2006 Result

Hewlett-Packard Company
ProLiant DL580 Gen9
(2.50 GHz, Intel Xeon E7-8867 v3)

SPECint2006 = 63.4
SPECint_base2006 = 61.5

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

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 U17 03/13/2015
Memory:
  32x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1600 MHz
  64x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of memory is 512 GB and the dmidecode description should have one line reading as:
  32x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1600 MHz

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 = "64"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

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

Continued on next page
Hewlett-Packard Company

ProLiant DL580 Gen9
(2.50 GHz, Intel Xeon E7-8867 v3)

SPECint2006 = 63.4
SPECint_base2006 = 61.5

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company
Test date: Apr-2015
Hardware Availability: May-2015
Software Availability: Oct-2014

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 -03 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xCORE-AVX2 -ipo -03 -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/composer_xe_2015/lib/ia32
445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks (except as noted below):
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Continued on next page
Hewlett-Packard Company
ProLiant DL580 Gen9
(2.50 GHz, Intel Xeon E7-8867 v3)

SPECint2006 = 63.4
SPECint_base2006 = 61.5

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Apr-2015
Hardware Availability: May-2015
Software Availability: Oct-2014

Peak Portability Flags (Continued)

464.h264ref: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -opt-prefetch -ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
             -O3(pass 2) -no-prec-div -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: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
          -opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
            -ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
           -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
           -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
            -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
            -opt-ra-region-strategy=block -ansi-alias
            -Wl,-z,muldefs -L/sh -lsmartheap

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

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

-peak-optimization-flags-continued
Hewlett-Packard Company
ProLiant DL580 Gen9
(2.50 GHz, Intel Xeon E7-8867 v3)

SPECint2006 = 63.4
SPECint_base2006 = 61.5

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Apr-2015
Hardware Availability: May-2015
Software Availability: Oct-2014

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-ic15.0-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-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.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 May 19 18:17:01 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 May 2015.