## SPECint®2006 Result

### Hewlett-Packard Company

ProLiant DL580 Gen9  
(3.20 GHz, Intel Xeon E7-8893 v3)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint2006</th>
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<td>116.4</td>
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<td>43.5</td>
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<td>473.astar</td>
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</tr>
<tr>
<td>483.xalancbmk</td>
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<td>63.1</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 3  
**Test date:** May-2015  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz  
**CPU(s) enabled:** 16 cores, 4 chips, 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:** 45 MB I+D on chip per chip  
**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  

### Software

| Operating System | SUSE Linux Enterprise Server 12 (x86_64)  
|------------------|-------------------------------------------|
| Compiler         | C/C++: Version 15.0.0.0.90 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  

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Standard Performance Evaluation Corporation  
info@spec.org  
http://www.spec.org/
Hewlett-Packard Company

ProLiant DL580 Gen9
(3.20 GHz, Intel Xeon E7-8893 v3)

SPECint2006 = 64.1
SPECint_base2006 = 62.2

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<td>110</td>
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<td>107</td>
<td>64.0</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 options set to Disabled
  - 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 Package C6 (retention) 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

Sysinfo program /home/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $ e3fbb8667b5a285932ceab81e28219e1
running on linux-yu57 Tue May 12 23:24:02 2015
This section contains SUT (System Under Test) info as seen by
Continued on next page
## Hewlett-Packard Company

ProLiant DL580 Gen9  
(3.20 GHz, Intel Xeon E7-8893 v3)

### SPECint2006 Result

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**Test sponsor:** Hewlett-Packard Company  
**Tested by:** Hewlett-Packard Company

### 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 E7-8893 v3 @ 3.20GHz  
- **4 "physical id"s (chips)**  
- **16 "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 1 5 16 20**  
  - **physical 1: cores 1 5 16 20**  
  - **physical 2: cores 1 5 16 20**  
  - **physical 3: cores 1 5 16 20**  
- **cache size : 46080 KB**

From /proc/meminfo

- **MemTotal:** 529172048 kB  
- **HugePages_Total:** 0  
- **Hugepagesize:** 2048 kB

/usr/bin/lsb_release -d

- **SUSE Linux Enterprise Server 12**

From /etc/*release* /etc/*version*

- **SuSE-release:**  
  - **SUSE Linux Enterprise Server 12 (x86_64)**  
  - **VERSION = 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-yu57 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 May 12 23:23

**SPEC is set to:** /home/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/sda4</td>
<td>xfs</td>
<td>331G</td>
<td>71G</td>
<td>261G</td>
<td>22%</td>
<td>/home</td>
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Hewlett-Packard Company

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CPU2006 license: 3
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Test date: May-2015
Hardware Availability: May-2015
Software Availability: Oct-2014

Platform Notes (Continued)

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 HP U17 03/13/2015
Memory:
11x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1600 MHz
64x UNKNOWN NOT AVAILABLE
21x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1600 MHz

(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 two lines reading as:
11x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1600 MHz
21x UNKNOWN NOT AVAILABLE 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,compact"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "16"

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
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

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### Base Portability Flags (Continued)

- 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`

### 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/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`
- 445.gobmk: `-DSPEC_CPU_LP64`
- 456.hmmer: `-DSPEC_CPU_LP64`

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### Peak Portability Flags (Continued)

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<td><code>-DSPEC_CPU_LP64</code> <code>-DSPEC_CPU_LINUX</code></td>
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### Peak Optimization Flags

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<td><code>-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</code></td>
</tr>
<tr>
<td>401.bzip2</td>
<td><code>-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</code></td>
</tr>
<tr>
<td>403.gcc</td>
<td><code>-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32</code></td>
</tr>
<tr>
<td>429.mcf</td>
<td><code>basepeak = yes</code></td>
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<td><code>basepeak = yes</code></td>
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<td><code>-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4</code></td>
</tr>
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**SPECint2006 = 64.1**

**SPECint_base2006 = 62.2**

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### 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

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For other inquiries, please contact webmaster@spec.org.

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