Hewlett-Packard Company
ProLiant BL660c Gen9
(2.10 GHz, Intel Xeon E5-4669 v3)

**SPECint®2006** = 54.4
**SPECint_base2006** = 52.8

<table>
<thead>
<tr>
<th>Test date:</th>
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<tr>
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<td>Hewlett-Packard Company</td>
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<tr>
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<td>Oct-2014</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Jun-2015</td>
</tr>
</tbody>
</table>

| CPU2006 license: | 3 |
| Tested by: | Hewlett-Packard Company |

![Graph showing SPECint results](image)

### Hardware
- **CPU Name:** Intel Xeon E5-4669 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.90 GHz
- **CPU MHz:** 2100
- **FPU:** Integrated
- **CPU(s) enabled:** 36 cores, 2 chips, 18 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:** 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
- **Disk Subsystem:** 1 x 400 GB SAS SSD, RAID 0
- **Other Hardware:** None

### Software
- **Operating System:** SUSE Linux Enterprise Server 12 (x86_64) Kernel 3.12.28-4-default
- **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 BL660c Gen9
(2.10 GHz, Intel Xeon E5-4669 v3)

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Results Table

<table>
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<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<th>Peak</th>
<th>Seconds</th>
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<tr>
<td>400.perlbench</td>
<td>293</td>
<td>33.4</td>
<td>293</td>
<td>33.3</td>
<td>256</td>
<td>38.2</td>
<td>255</td>
<td>38.4</td>
<td>255</td>
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<tr>
<td>401.bzip2</td>
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<td>19.8</td>
<td>488</td>
<td>19.9</td>
<td>481</td>
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<tr>
<td>403.mcf</td>
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<td>28.1</td>
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<td>28.0</td>
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<td>46.4</td>
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<td>47.2</td>
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<td>193</td>
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<td>445.gobmk</td>
<td>435</td>
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<td>436</td>
<td>24.1</td>
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<td>24.1</td>
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<td>464.h264ref</td>
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<td>471.omnetpp</td>
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<tr>
<td>483.xalancbmk</td>
<td>127</td>
<td>54.2</td>
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<td>55.3</td>
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<td>55.3</td>
<td>129</td>
<td>53.3</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:
  Intel Hyperthreading Options set to Disabled
  HP Power Profile set to Custom
  HP Power Regulator to HP Static High Performance Mode
  Minimum Processor Idle Power Core State set to C6 State
  Minimum Processor Idle Power Package 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 /home/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on b1660cgen9sles12cpu Sat Apr 25 20:30:53 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
Hewlett-Packard Company
ProLiant BL660c Gen9
(2.10 GHz, Intel Xeon E5-4669 v3)

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

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

Platform Notes (Continued)

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

From /proc/cpuinfo
- model name: Intel(R) Xeon(R) CPU E5-4669 v3 @ 2.10GHz
- 2 "physical id"s (chips)
- 36 "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: 18
  - physical 0: cores 0 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 1: cores 0 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  - cache size: 46080 KB

From /proc/meminfo
- MemTotal: 264547712 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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 bl660cgen9sles12cpu 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 25 14:37

SPEC is set to: /home/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 331G 4.1G 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.
## SPEC CINT2006 Result

**Hewlett-Packard Company**  
ProLiant BL660c Gen9  
(2.10 GHz, Intel Xeon E5-4669 v3)  

**SPECint2006 =** 54.4  
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### Platform Notes (Continued)

BIOS HP I38 03/05/2015  
Memory:  
16x UNKNOWN NOT AVAILABLE  
16x UNKNOWN NOT AVAILABLE 16 GB 2 rank 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 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/sh"  
OMP_NUM_THREADS = "36"  

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  
473.astar: -DSPEC_CPU_LP64  
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
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Hewlett-Packard Company
ProLiant BL660c Gen9
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CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

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 -m64

471.omnetpp: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

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
458.sjeng: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
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Test date: Apr-2015
Tested by: Hewlett-Packard Company
Hardware Availability: Jun-2015
Software Availability: Oct-2014

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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)
-03(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -03 -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(pass 1) -ipo(pass 2)
-03(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)
-03(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: basepeak = yes
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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.html
# SPEC CINT2006 Result

**Hewlett-Packard Company**

**ProLiant BL660c Gen9**  
(2.10 GHz, Intel Xeon E5-4669 v3)

| Metric                          | Value  
|--------------------------------|--------
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| SPECint_base2006              | 52.8   

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| Tested by                     | Hewlett-Packard Company  
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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/Intel-ic15.0-official-linux64.xml)
- [http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.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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