**Hewlett-Packard Company**

ProLiant BL460c G7 (2.53 GHz, Intel Xeon E5649)

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>325</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>301</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E5649
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.93 GHz
- **CPU MHz:** 2533
- **FPU:** Integrated
- **CPU(s) enabled:** 12 cores, 2 chips, 6 cores/chip, 2 threads/core
- **CPU(s) orderable:** 1.2 chips
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core
- **L3 Cache:** 12 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)
- **Disk Subsystem:** 1 x 146 GB 10 K SAS
- **Other Hardware:** None

**Software**

- **Operating System:** SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default
- **Compiler:** Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116
- **Auto Parallel:** No
- **File System:** ext3
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V9.01

**Test Information**

- **CPU2006 license:** 3
- **Test sponsor:** Hewlett-Packard Company
- **Honed by:** Hewlett-Packard Company
- **Test date:** Mar-2011
- **Hardware Availability:** Feb-2011
- **Software Availability:** Dec-2010

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**SPECint_rate2006 = 325**

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<tr>
<th>Benchmark</th>
<th>Result</th>
<th>Result_base</th>
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<td>400.perlbench</td>
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<tr>
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<tr>
<td>403.gcc</td>
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<td>429.mcf</td>
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<td>473.astar</td>
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</table>

**SPECint_rate_base2006 = 301**
Hewlett-Packard Company

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SPEC CINT2006 Result

**SPECint_rate2006 = 325**

**SPECint_rate_base2006 = 301**

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**Results Table**

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<td>300</td>
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<td>301</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.
numactl was used to bind copies to the cores.

**Operating System Notes**

'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
echo 10800 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

**Platform Notes**

BIOS configuration:
HP Power Profile set to Maximum Performance
Thermal Configuration set to Increased Cooling
Data Reuse set to Disabled

**General Notes**

Binaries were compiled on RHEL5.5
### Base Compiler Invocation

**C benchmarks:**
- `icc -m32`

**C++ benchmarks:**
- `icpc -m32`

### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tr>
<td>400.perlbench</td>
<td><code>-DSPEC_CPU_LINUX_IA32</code></td>
</tr>
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<td>462.libquantum</td>
<td><code>-DSPEC_CPU_LINUX</code></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td><code>-DSPEC_CPU_LINUX</code></td>
</tr>
</tbody>
</table>

### Base Optimization Flags

**C benchmarks:**
- `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch`  
- `-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

**C++ benchmarks:**
- `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs -L/smartheap -lsmartheap`  
- `-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

### Base Other Flags

**C benchmarks:**
- `403.gcc: -Dalloca=_alloca`

### Peak Compiler Invocation

**C benchmarks (except as noted below):**
- `icc -m32`
  
  - `400.perlbench: icc -m64`
  - `401.bzip2: icc -m64`
  - `456.hmmer: icc -m64`
  - `458.sjeng: icc -m64`  

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Test date: Mar-2011
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Hardware Availability: Feb-2011
Tested by: Hewlett-Packard Company
Software Availability: Dec-2010

Peak Compiler Invocation (Continued)

C++ benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
opt-prefetch -auto-ilp32 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

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CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
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Peak Optimization Flags (Continued)

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/smartheap -lsmartheap

473.astar: basepeak = yes
483.xalanchbmk: 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-ic12.0-linux64-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20100525.xml

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