Hewlett-Packard Company
ProLiant DL380p Gen8
(3.00 GHz, Intel Xeon E5-2637)

SPEC®_rate2006 = 196
SPEC_rate_base2006 = 188

CPU2006 license: 3
Test date: Apr-2012
Test sponsor: Hewlett-Packard Company
Hardware Availability: Jun-2012
Tested by: Hewlett-Packard Company
Software Availability: Mar-2012

### Hardware

- **CPU Name:** Intel Xeon E5-2637
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz
- **CPU MHz:** 3000
- **FPU:** Integrated
- **CPU(s) enabled:** 4 cores, 2 chips, 2 cores/chip, 2 threads/core
- **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:** 5 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
- **Disk Subsystem:** 2 x 146 GB 15 K SAS, RAID 1
- **Other Hardware:** None

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 6.2, (Santiago)
  Kernel 2.6.32-220.el6.x86_64
- **Compiler:** C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux
- **Auto Parallel:** No
- **File System:** ext4
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V9.01
  HP Array Configuration Utility, CLI version
Hewlett-Packard Company

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Results Table

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</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
Drive Write Cache set to Enabled in HP Array Configuration Utility, CLI version
Accelerator Ratio for Reads/Writes set to = 100% Read / 0% Write in HP Array Configuration Utility, CLI version

Platform Notes

BIOS Configuration:
HP Power Profile set to Custom
Energy/Performance Bias is set to Maximum Performance
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Sysinfo program /cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on rh62 Sat Apr 28 00:02:07 2012
Continued on next page
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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 E5-2637 0 @ 3.00GHz
  2 "physical id"s (chips)
     8 "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 : 2
   siblings : 4
   physical 0: cores 0 1
   physical 1: cores 0 1
   cache size : 5120 KB

From /proc/meminfo
MemTotal: 132120004 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

uname -a:
   Linux rh62 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011 x86_64
   x86_64 x86_64 GNU/Linux

run-level 3 Apr 27 09:59 last=5

SPEC is set to: /cpu2006

Filesystem    Type    Size  Used Avail Use% Mounted on
/dev/mapper/vg_rh62-lv_root  ext4    50G  15G  32G  33% /

Additional information from dmidecode:
BIOS HP P70 02/21/2012
Memory:
16x Not Specified Not Specified 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
**General Notes**

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/cpu2006/libs2/32:/cpu2006/libs2/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

**Base Compiler Invocation**

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

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

**Base Portability Flags**

C benchmarks:
```
400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX
```

**Base Optimization Flags**

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/spec/libs2/32 -lsmartheap
```

**Base Other Flags**

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

**Peak Compiler Invocation**

C benchmarks (except as noted below):
```
icc  -m32
```
**SPEC CINT2006 Result**

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**Peak Compiler Invocation (Continued)**

- 400.perlbench: `icc -m64`
- 456.hmmer: `icc -m64`
- 458.sjeng: `icc -m64`

**C++ benchmarks:**

- icpc: `-m32`

---

**Peak Portability Flags**

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

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**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) -auto-ilp32`
- 401.bzip2: `basepeak = yes`
- 403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div`
- 429.mcf: `basepeak = yes`
- 445.gobmk: `-xSSE4.2 (pass 2) -prof-gen (pass 1) -prof-use (pass 2) -ansi-alias -opt-mem-layout-trans=3`
- 456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`
- 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`
- 462.libquantum: `basepeak = yes`
- 464.h264ref: `-xSSE4.2 (pass 2) -prof-gen (pass 1) -ipo (pass 2) -O3 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2) -unroll2 -ansi-alias`

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -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 -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/spec/libs2/32 -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-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120523.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120523.xml

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

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