Hewlett-Packard Company
ProLiant DL580 Gen8
(2.60 GHz, Intel Xeon E7-4860 v2)

SPECint®2006 = 54.0
SPECint_base2006 = 50.0

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

Hewlett-Packard Company

CPU Name: Intel Xeon E7-4860 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2600
FPU: Integrated
CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable: 2,4 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: 30 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz and CL9)
Disk Subsystem: 1 x 400 GB SSD SAS, RAID 0
Other Hardware: None

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP3
Kernel 3.0.76-0.11-default
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: ext3
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 Gen8
(2.60 GHz, Intel Xeon E7-4860 v2)

SPECint2006 = 54.0
SPECint_base2006 = 50.0

Results Table

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<tr>
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<td>51.1</td>
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</tbody>
</table>

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

Operating System Notes

- Stack size set to unlimited using "ulimit -s unlimited"
- Transparent Huge Pages enabled with:
  - echo always > /sys/kernel/mm/redhat_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>
- Disabled unused Linux services through "stop_services.sh" before running.

Platform Notes

- BIOS Configuration:
  - HP Power Profile set to Maximum Performance
  - Minimum Processor Idle Power Core State set to C6 State to Enabled
  - Minimum Processor Idle Power Packages State set to Package C6 (non-retention) State
  - 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 Disabled

Sysinfo program /cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191

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

Continued on next page
## Platform Notes (Continued)

From `/proc/cpuinfo`

- model name: Intel(R) Xeon(R) CPU E7-4860 v2 @ 2.60GHz
- 4 "physical id"s (chips)
- 96 "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: 12
  - siblings: 24

  - physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  - physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
  - physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
  - physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
- cache size: 30720 KB

From `/proc/meminfo`

- MemTotal: 1058855444 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

```
$ /usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)
```

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

```
$ SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 3
```

```
$ run-level 3 Apr 14 15:30 last=S
```

**SPEC is set to:** `/cpu2006`

```
$ Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 ext3 365G 14G 333G 5% /
```

**Additional information from dmidecode:**

- BIOS HP P79 02/21/2014
- Memory:
  - 64x HP 712383-081 16 GB 1333 MHz
  - 32x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 1 TB and the dmidecode description should have one line reading as:

```
- 64x HP 712383-081 16 GB 1333 MHz 2 rank
```
Hewlett-Packard Company
ProLiant DL580 Gen8
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Tested by: Hewlett-Packard Company

Test date: Apr-2014
Hardware Availability: Feb-2014
Software Availability: Sep-2013

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "48"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Base Compiler Invocation

C benchmarks:
   icc -m64

C++ benchmarks:
   icpc -m64

Base Portability Flags

C benchmarks:
   -xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
   -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
   -Wl,-z,muldefs -L/sh -lsmartheap64

Base Optimization Flags

C benchmarks:
   -xSSE4.2 -ipo -O3 -no-prec-div -parallel -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`
- `445.gobmk`: `icc -m32`
- `464.h264ref`: `icc -m32`

C++ benchmarks (except as noted below):

- `icpc -m32`
- `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
473.astar: -DSPEC_CPU_LP64
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) -opt-prefetch -ansi-alias
```

```
401.bzip2: -xSSE4.2(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
```
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ProLiant DL580 Gen8
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Hardware Availability: Feb-2014
Software Availability: Sep-2013

Peak Optimization Flags (Continued)

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc
-optim-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

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

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

458.sjeng: -xSSE4.2 (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: -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)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revD.xml
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| SPECint2006 = | 54.0 |
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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