Dell Inc. PowerEdge R920 (Intel Xeon E7-8891 v2, 3.20 GHz)

SPECfp®2006 = 113
SPECfp_base2006 = 107

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Hardware

CPU Name: Intel Xeon E7-8891 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 3200
FPU: Integrated
CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip, 2 threads/core
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: 37.5 MB I+D on chip per chip
Other Cache: None
Memory: 1024 GB (64 x 16 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 400 GB SAS6 SSD
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64)
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext2
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>26.1</td>
</tr>
</tbody>
</table>

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

**BIOS settings:**
Virtualization Technology disabled
Execute Disable disabled
Logical Processor enabled
System Profile set to Custom
Memory Patrol Scrub set to disabled
Sysinfo program:
```
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
```
runtime on slesperf3 Fri Feb  7 03:04:56 2014

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 E7-8891 v2 @ 3.20GHz
- 4 "physical id"s (chips)
- 80 "processors"
- 10 core, siblings (Caution: counting these is hw and system dependent. Use with caution.)
  - cpu cores : 10
  - siblings : 20
  - physical 0: cores 2 3 4 5 6 7 8 10 11 12
  - physical 1: cores 2 3 4 5 6 7 8 10 11 12
  - physical 2: cores 2 3 4 5 6 7 8 10 11 12
  - physical 3: cores 2 3 4 5 6 7 8 10 11 12
  - cache size : 38400 KB

From `/proc/meminfo`
- MemTotal:       1058789108 kB
- HugePages_Total:       0
- Hugepagesize:       2048 kB

From `/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

uname -a: Linux slesperf3 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
coa6990) x86_64 x86_64 GNU/Linux
run-level 3 Feb 6 09:45 last=S

Additional information from dmidecode:
- BIOS Dell Inc. 1.0.4 01/27/2014
- Memory:
  - 31x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
  - 19x 00CE00B300CE M393B2G70CB0-YK0 16 GB 1333 MHz
  - 8x 00CE04B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
  - 6x 00CE04B300CE M393B2G70CB0-YK0 16 GB 1333 MHz

(End of data from sysinfo program)

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### General Notes

Environment variables set by runspec before the start of the run:
- MP_AFFINITY = "granularity=fine,compact,1,0"
- MP_NUM_THREADS = "40"

Blinders compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
- echo always >/sys/kernel/mm/transparent_hugepage/enabled
- runspec command invoked through numacli i.e.:
  - numacli --interleave=all runspec <etc>

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### Base Compiler Invocation

**C benchmarks:**
- icc -m64
C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

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**Base Portability Flags**

C benchmarks:
-xAVX -ipo -O3 -no-prec-div parallel -opt-prefetch -ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div parallel -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div parallel -opt-prefetch -ansi-alias

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**Base Optimization Flags**

C benchmarks:

C++ benchmarks:

Fortran benchmarks:

Benchmarks using both Fortran and C:

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**Peak Compiler Invocation**

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

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**Peak Portability Flags**

Same as Base Portability Flags

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**Peak Optimization Flags**

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.games: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-
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