SPEC® CFP2006 Result

Fujitsu
PRIMERGY RX4770 M1, Intel Xeon E7-4820 v2, 2.00 GHz

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

SPECfp®_rate2006 = NC
SPECfp_rate_base2006 = NC

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

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Fujitsu or Intel.

<table>
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<th>Copies</th>
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<tbody>
<tr>
<td>410.bwaves</td>
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<tr>
<td>416.gamess</td>
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<td>433.milc</td>
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<td>434.zeusmp</td>
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<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon E7-4820 v2</td>
<td>Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)</td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz</td>
<td>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</td>
</tr>
<tr>
<td>CPU MHz: 2000</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>File System: ext4</td>
</tr>
<tr>
<td>CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core</td>
<td>System State: Run level 5 (multi-user)</td>
</tr>
<tr>
<td>CPU(s) orderable: 4 chips</td>
<td>Base Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
<td>Other Software: None</td>
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<tr>
<td>L3 Cache: 16 MB I+D on chip per chip</td>
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<tr>
<td>Other Cache: None</td>
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<tr>
<td>Memory: 1 TB (64 x 16 GB 2Rx4 RDIMM, 12800R-11, ECC, running at 1333 MHz and 2.9)</td>
<td></td>
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<tr>
<td>Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM</td>
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<tr>
<td>Other Hardware: None</td>
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</tbody>
</table>

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Non-Compliant
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Results Table:

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</table>

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"
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Platform Notes

BIOS configuration:
Energy Performance = Performance

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "'/SPECcpu2006-MONITOR/libs/32:/SPECcpu2006-MONITOR/libs/64:/SPECcpu2006-MONITOR/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.
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>
For information about Fujitsu please visit: http://www.fujitsu.com

Base Compiler Invocation

C benchmarks:
   icc   -m64

C++ benchmarks:
   icpc  -m64
   ifort -m64

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

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64

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**Base Portability Flags (Continued)**

```plaintext
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64
```

**Base Optimization Flags**

- **C benchmarks**:
  ```plaintext
  -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
  -opt-mem-layout-trans=3
  ```

- **C++ benchmarks**:
  ```plaintext
  -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
  -layout-trans=3
  ```

- **Fortran benchmarks**:
  ```plaintext
  -AVX -ipo -O3 -no-prec-div -opt-prefetch
  ```

- **Benchmarks using both Fortran and C**:
  ```plaintext
  -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
  -opt-mem-layout-trans=3
  ```
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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`

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
- `433.milc: basepeak = yes`
- `470.hm: basepeak = yes`
- `482.sphinx3: basepeak = yes`

C++ benchmarks:
- `444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32`
- `447.dealII: basepeak = yes`
- `450.soplex: basepeak = yes`
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Peak Optimization Flags (Continued)

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ips(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
   -prof-use(pass 2) -unroll14 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

Fortran benchmarks:

416.gamess: -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 -scalar-reg-

434.zeusmp: basepeak = yes

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
   -scalar-rep-

436.cactusADM: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -prof-use(pass 2) -unroll14 -auto
   -inline-alloc -opt-malloc-options=3

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20131009.html
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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revB.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20131009.xml