Fujitsu

PRIMERGY RX600 S6, Intel Xeon E7-4860, 2.27 GHz

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

Test date: Aug-2011
Hardware Availability: Jul-2011
Software Availability: Jul-2011

410.bwaves
416.gamess
433.milc
434.zeusmp
435.gromacs
436.cactusADM
437.leslie3d
444.namd
447.dealII
450.soplex
453.povray
454.calculix
459.GemsFDTD
465.tonto
470.lbm
481.wrf
482.sphinx3

40
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316
285
396
395
305
382
378
370
207
357
348
242
230
198
448
439
424
366
358
338

SPECfp®_rate2006 = 363
SPECfp_rate_base2006 = 349

Hardware

CPU Name: Intel Xeon E7-4860
CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz: 2267
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable: 2,3,4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default
Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64
Version 12.0.4.191 Build 20110427
Auto Parallel: No
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

Continued on next page

Continued on next page
### Results Table

<table>
<thead>
<tr>
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<th>Seconds</th>
<th>Ratio</th>
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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 config file option 'submit' was used.
numactl was used to bind copies to the cores.

### Operating System Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 36000 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
SPEC CFP2006 Result

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SPECfp_rate_base2006 = 349

CPU2006 license: 19
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Platform Notes

BIOS configuration:
Data Reuse Optimization = Disable
Performance/Power Setting = Traditional

General Notes

Binaries were compiled on RHEL5.5
For information about Fujitsu please visit: http://www.fujitsu.com

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

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64 -nofor_main
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
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG
482.sphinx3: -DSPEC_CPU_LP64
**Fujitsu**

PRIMERGY RX600 S6, Intel Xeon E7-4860, 2.27 GHz

**SPEC CFP2006 Result**

```
SPECfp_rate2006 = 363  
SPECfp_rate_base2006 = 349
```

CPU2006 license: 19
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**Base Optimization Flags**

C benchmarks:
- `-xsse4.2` `-ipo` `-O3` `-no-prec-div` `-static` `-ansi-alias`

C++ benchmarks:
- `-xsse4.2` `-ipo` `-O3` `-no-prec-div` `-static` `-ansi-alias`

Fortran benchmarks:
- `-xsse4.2` `-ipo` `-O3` `-no-prec-div` `-static`

Benchmarks using both Fortran and C:
- `-xsse4.2` `-ipo` `-O3` `-no-prec-div` `-static` `-ansi-alias`

**Peak Compiler Invocation**

C benchmarks (except as noted below):
```
icc   -m64
```
```
482.sphinx3: icc   -m32
```

C++ benchmarks (except as noted below):
```
icpc  -m64
```
```
450.soplex: icpc -m32
```

Fortran benchmarks:
```
ifort -m64
```

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

**Peak Portability Flags**

```
410.bwaves: -DSPEC_CPU_LP64
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
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
```

Continued on next page
Peak Portability Flags (Continued)

470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
- no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
- ansi-alias -opt-prefetch -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
- no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
- B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
- no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
- B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
- no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xSSE4.2(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- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -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
- inline-calloc -opt-malloc-options=3

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SPEC CFP2006 Result

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PRIMERGY RX600 S6, Intel Xeon E7-4860, 2.27 GHz

| SPECfp_rate2006 | 363 |
| SPECfp_rate_base2006 | 349 |

CPU2006 license: 19
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Peak Optimization Flags (Continued)

465.tonto (continued):
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: -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
-static -auto-Ilp32

436.cactusADM: basepeak = yes
454.calculix: basepeak = yes
481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20110705.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.20110316.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20110705.xml

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

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