SPEC® CFP2006 Result

Supermicro

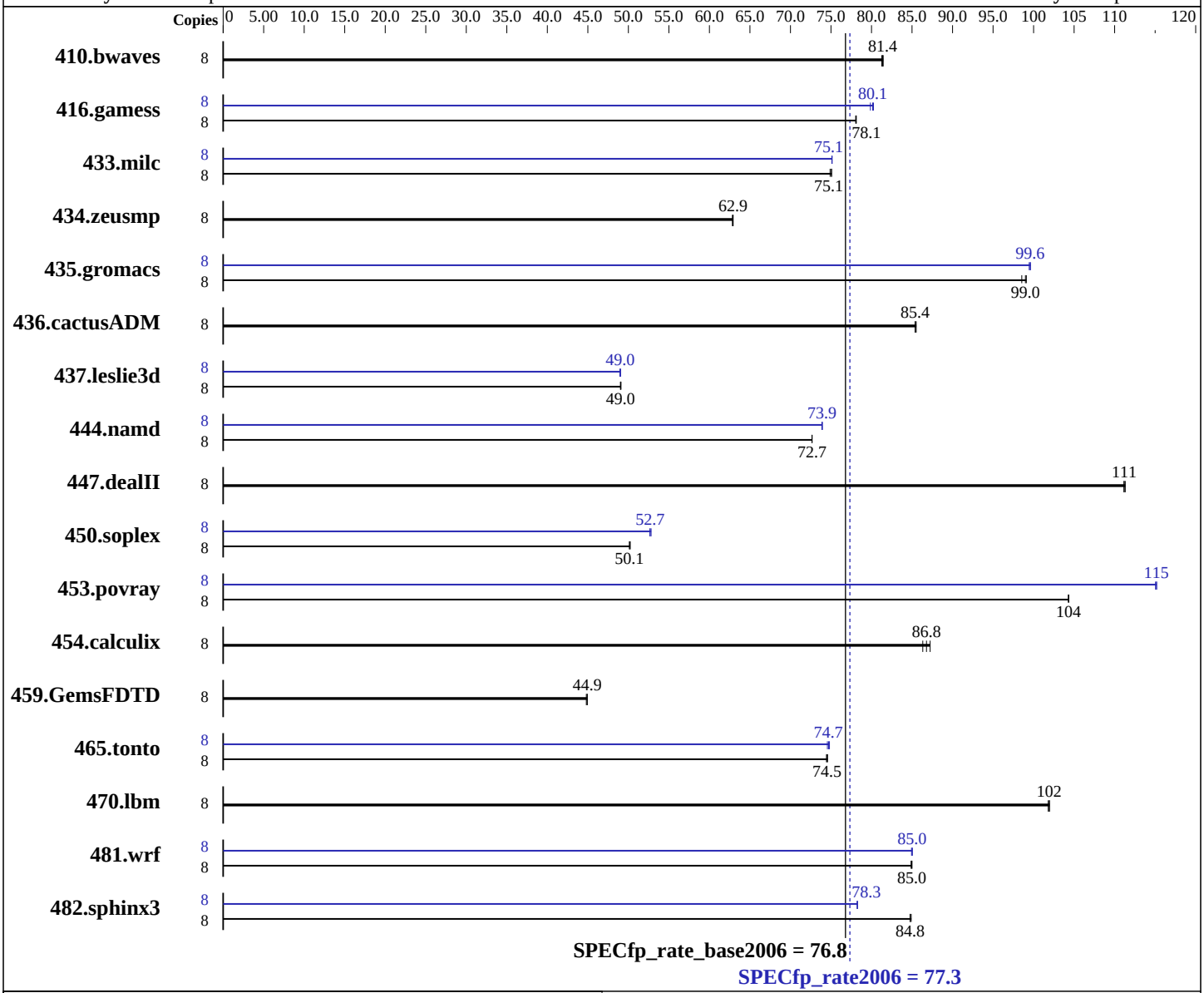
(A1SAi-2750F , Intel Atom C2750)

SPECfp®_rate2006 = 77.3

SPECfp_rate_base2006 = 76.8

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

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



Hardware

CPU Name:	Intel Atom C2750
CPU Characteristics:	Intel Turbo Boost Technology up to 2.60 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	8 cores, 1 chip, 8 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 24 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per chip, 1 MB I+D shared / 2 cores

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Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.el6.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:	No
File System:	ext4

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L3 Cache: None
Other Cache: None
Memory: 32 GB (4 x 8 GB 2Rx8 EP3L-12800E-11, ECC)
Disk Subsystem: 1 x 300 GB SATA II, 5000 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1335	81.4	1338	81.3	**1336**	**81.4**	8	1335	81.4	1338	81.3	**1336**	**81.4**
416.gamess	8	**2006**	**78.1**	2005	78.1	2007	78.0	8	1952	80.2	1961	79.9	**1955**	**80.1**
433.milc	8	981	74.9	**978**	**75.1**	978	75.1	8	978	75.1	977	75.1	**978**	**75.1**
434.zeusmp	8	1159	62.8	1157	62.9	**1157**	**62.9**	8	1159	62.8	1157	62.9	**1157**	**62.9**
435.gromacs	8	**577**	**99.0**	576	99.1	580	98.5	8	573	99.6	574	99.5	**574**	**99.6**
436.cactusADM	8	**1119**	**85.4**	1118	85.5	1120	85.4	8	**1119**	**85.4**	1118	85.5	1120	85.4
437.leslie3d	8	**1533**	**49.0**	1532	49.1	1534	49.0	8	1533	49.0	**1535**	**49.0**	1536	48.9
444.namd	8	**883**	**72.7**	883	72.6	883	72.7	8	**868**	**73.9**	868	73.9	868	73.9
447.dealII	8	823	111	**823**	**111**	822	111	8	823	111	**823**	**111**	822	111
450.soplex	8	1331	50.1	**1331**	**50.1**	1328	50.2	8	**1266**	**52.7**	1263	52.8	1267	52.7
453.povray	8	408	104	**408**	**104**	408	104	8	370	115	**370**	**115**	370	115
454.calculix	8	757	87.2	765	86.3	**761**	**86.8**	8	757	87.2	765	86.3	**761**	**86.8**
459.GemsFDTD	8	1894	44.8	1890	44.9	**1890**	**44.9**	8	1894	44.8	1890	44.9	**1890**	**44.9**
465.tonto	8	1057	74.4	1056	74.6	**1056**	**74.5**	8	**1054**	**74.7**	1056	74.6	1052	74.8
470.lbm	8	1078	102	**1078**	**102**	1080	102	8	1078	102	**1078**	**102**	1080	102
481.wrf	8	1051	85.0	**1052**	**85.0**	1053	84.9	8	1052	84.9	1051	85.0	**1051**	**85.0**
482.sphinx3	8	**1839**	**84.8**	1837	84.9	1840	84.8	8	**1992**	**78.3**	1992	78.3	1993	78.2

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.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Platform Notes

```
Sysinfo program /home/cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost Tue Jun  3 20:22:15 2014

This section contains SUT (System Under Test) info as seen by
```

Continued on next page

Platform Notes (Continued)

```
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) Atom(TM) CPU C2750 @ 2.40GHz
      1 "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 : 8
      siblings  : 8
      physical 0: cores 0 1 2 3 4 5 6 7
   cache size : 1024 KB

From /proc/meminfo
   MemTotal:       32866396 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux localhost 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 3 02:47

SPEC is set to: /home/cpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/VolGroup-lv_home
                  ext4    210G   35G  165G  18% /home

Additional information from dmidecode:
  BIOS American Megatrends Inc. 1.0c 02/27/2014
  Memory:
   4x   8 GB
   2x Samsung M474B1G73BH0-YK0 8 GB 1600 MHz 1 rank
   2x Samsung M474B1G73BH0-YK0 8 GB 1600 MHz 2 rank

 (End of data from sysinfo program)
System has 4x 8GB Samsung DIMMs installed.
Memory info from dmidecode is displayed incorrectly.
All four DIMMs should be 'Samsung M474B1G73BH0-YK0 8 GB 1600 MHz 2 rank'
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

 Binaries 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/redhat_transparent_hugepage/enabled
```

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 -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
      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:
```
-xATOM_SSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Continued on next page

Base Optimization Flags (Continued)

C++ benchmarks:
`-xATOM_SSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

Fortran benchmarks:
`-xATOM_SSE4.2 -ipo -O3 -no-prec-div -opt-prefetch`

Benchmarks using both Fortran and C:
`-xATOM_SSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

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`

Continued on next page

Peak Portability Flags (Continued)

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

Peak Optimization Flags

C benchmarks:

433.milc: -xATOM_SSE4.2(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)
-auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: -xATOM_SSE4.2 -ipo -O3 -no-prec-div
-opt-mem-layout-trans=3 -unroll2

C++ benchmarks:

444.namd: -xATOM_SSE4.2(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: -xATOM_SSE4.2(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)
-opt-malloc-options=3

453.povray: -xATOM_SSE4.2(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) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xATOM_SSE4.2(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-

434.zeusmp: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

437.leslie3d: -xATOM_SSE4.2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xATOM_SSE4.2(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

Benchmarks using both Fortran and C:

435.gromacs: -xATOM_SSE4.2(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) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xATOM_SSE4.2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.html
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.xml
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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