SPEC® CFP2006 Result

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Supermicro

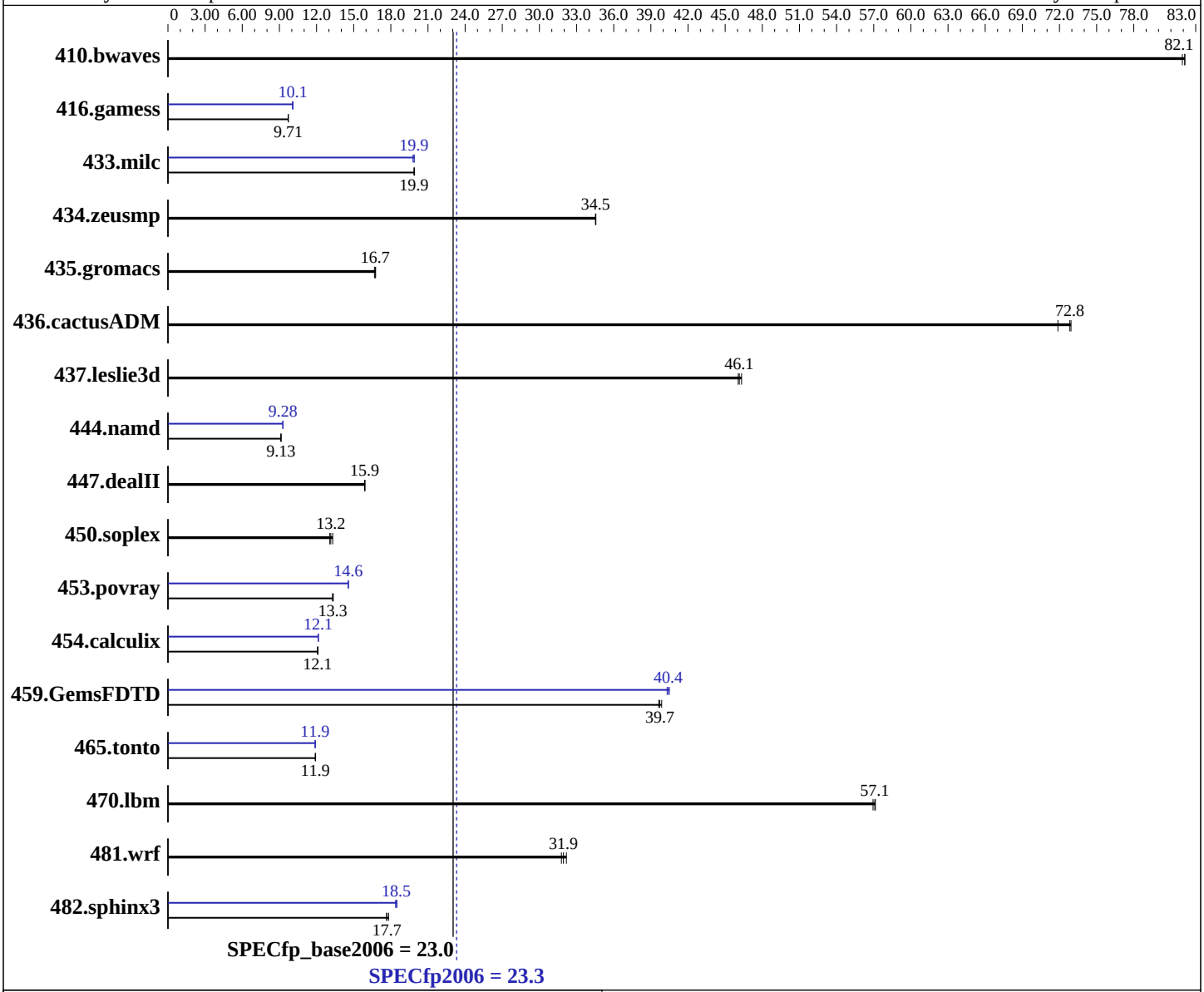
(A1SAi-2750F , Intel Atom C2750)

SPECfp®2006 = 23.3

SPECfp_base2006 = 23.0

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:	Yes
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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	165	82.1	166	81.9	**165**	**82.1**	165	82.1	166	81.9	**165**	**82.1**
416.gamess	2014	9.72	2017	9.71	**2016**	**9.71**	**1939**	**10.1**	1938	10.1	1947	10.1
433.milc	**462**	**19.9**	462	19.9	461	19.9	462	19.9	464	19.8	**462**	**19.9**
434.zeusmp	**264**	**34.5**	264	34.5	263	34.6	**264**	**34.5**	264	34.5	263	34.6
435.gromacs	426	16.8	428	16.7	**427**	**16.7**	426	16.8	428	16.7	**427**	**16.7**
436.cactusADM	164	72.9	**164**	**72.8**	166	71.9	164	72.9	**164**	**72.8**	166	71.9
437.leslie3d	**204**	**46.1**	204	46.1	203	46.3	**204**	**46.1**	204	46.1	203	46.3
444.namd	**879**	**9.13**	878	9.13	879	9.13	864	9.28	**864**	**9.28**	864	9.28
447.dealII	721	15.9	**720**	**15.9**	719	15.9	721	15.9	**720**	**15.9**	719	15.9
450.soplex	638	13.1	627	13.3	**634**	**13.2**	638	13.1	627	13.3	**634**	**13.2**
453.povray	400	13.3	398	13.4	**400**	**13.3**	365	14.6	**365**	**14.6**	365	14.6
454.calculix	681	12.1	**682**	**12.1**	683	12.1	679	12.2	**680**	**12.1**	680	12.1
459.GemsFDTD	266	39.9	**267**	**39.7**	268	39.6	263	40.3	**263**	**40.4**	262	40.5
465.tonto	827	11.9	826	11.9	**826**	**11.9**	**828**	**11.9**	827	11.9	828	11.9
470.lbm	240	57.1	241	56.9	**241**	**57.1**	240	57.1	241	56.9	**241**	**57.1**
481.wrf	347	32.2	**350**	**31.9**	352	31.8	347	32.2	**350**	**31.9**	352	31.8
482.sphinx3	1093	17.8	1104	17.7	**1102**	**17.7**	1060	18.4	1054	18.5	**1056**	**18.5**

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"
```

Platform Notes

```
Sysinfo program /home/cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost Thu Jun  5 06:21:59 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) Atom(TM) CPU C2750 @ 2.40GHz
```

Continued on next page

Platform Notes (Continued)

```
        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"
OMP_NUM_THREADS = "8"
```

Continued on next page

General Notes (Continued)

```
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
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

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 -parallel -opt-prefetch
-ansi-alias
```

Continued on next page

Base Optimization Flags (Continued)

C++ benchmarks:
`-xATOM_SSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

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

Benchmarks using both Fortran and C:
`-xATOM_SSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

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: `-xATOM_SSE4.2`(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: `-xATOM_SSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

Continued on next page

Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xATOM_SSE4.2(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: basepeak = yes

453.povray: -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 -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

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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) -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xATOM_SSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

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

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