



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]2006 = 47.0

PRIMERGY RX600 S6, Intel Xeon E7-2850, 2.00 GHz

SPECfp_base2006 = 43.5

CPU2006 license: 19

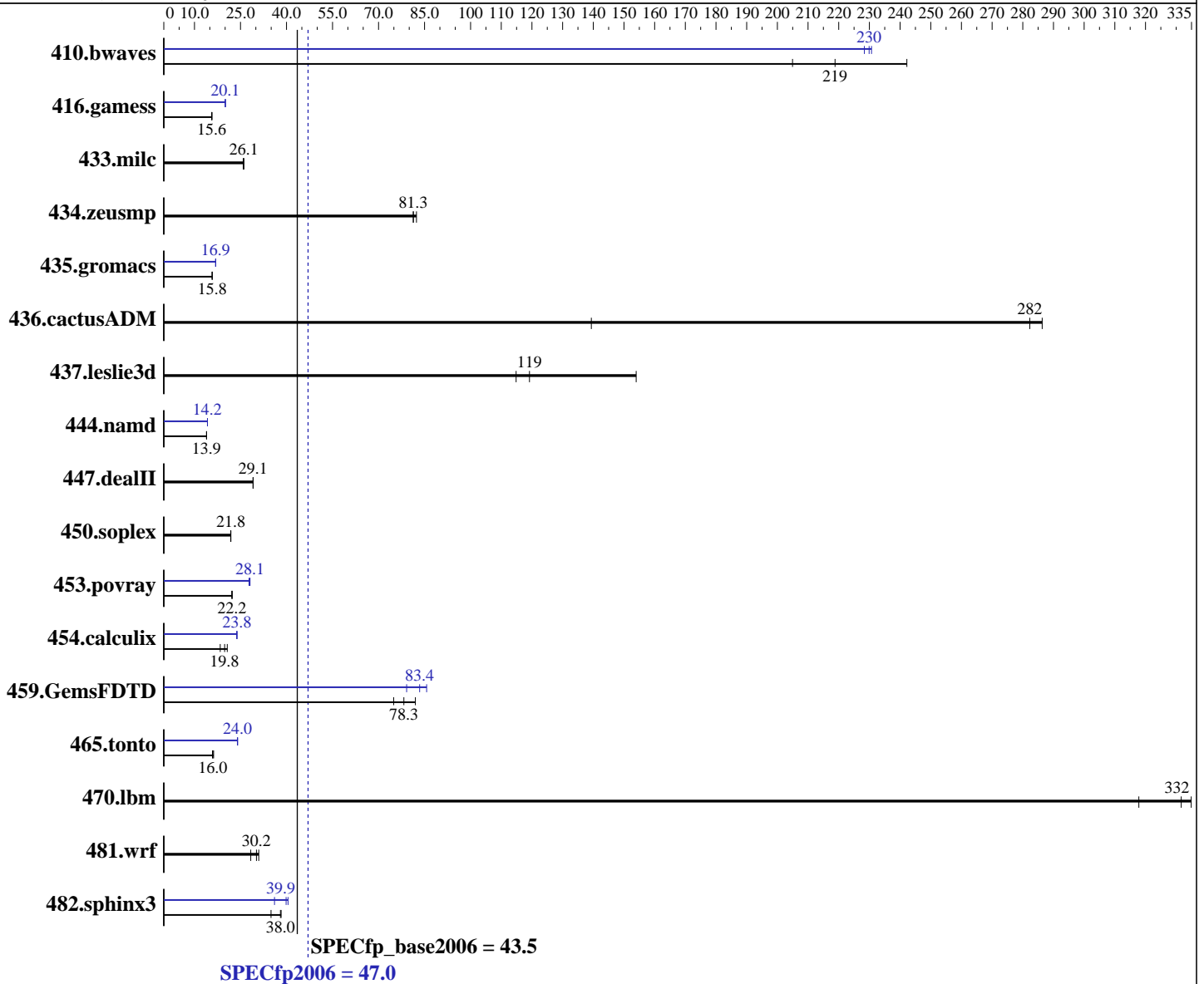
Test date: Jul-2011

Test sponsor: Fujitsu

Hardware Availability: Jul-2011

Tested by: Fujitsu

Software Availability: Jul-2011



Hardware

CPU Name: Intel Xeon E7-2850
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip
 CPU(s) orderable: 2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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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: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (32 x 8 GB 4Rx8 PC3L-8500R-7, ECC)
Disk Subsystem: 1 x SAS, 600 GB, 10000 RPM
Other Hardware: --

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	66.3	205	56.1	242	<u>62.1</u>	<u>219</u>	58.9	231	<u>59.1</u>	<u>230</u>	59.5	228
416.gamess	1250	15.7	<u>1251</u>	<u>15.6</u>	1252	15.6	<u>976</u>	<u>20.1</u>	977	20.0	975	20.1
433.milc	<u>352</u>	<u>26.1</u>	352	26.1	355	25.9	<u>352</u>	<u>26.1</u>	352	26.1	355	25.9
434.zeusmp	<u>112</u>	<u>81.3</u>	110	82.4	112	81.3	<u>112</u>	<u>81.3</u>	110	82.4	112	81.3
435.gromacs	452	15.8	<u>453</u>	<u>15.8</u>	453	15.8	422	16.9	<u>422</u>	<u>16.9</u>	422	16.9
436.cactusADM	41.7	286	85.7	139	<u>42.3</u>	<u>282</u>	41.7	286	85.7	139	<u>42.3</u>	<u>282</u>
437.leslie3d	61.0	154	<u>78.9</u>	<u>119</u>	81.9	115	61.0	154	<u>78.9</u>	<u>119</u>	81.9	115
444.namd	<u>575</u>	<u>13.9</u>	575	13.9	575	13.9	564	14.2	<u>564</u>	<u>14.2</u>	564	14.2
447.dealII	<u>393</u>	<u>29.1</u>	393	29.1	393	29.1	<u>393</u>	<u>29.1</u>	393	29.1	393	29.1
450.soplex	381	21.9	<u>382</u>	<u>21.8</u>	383	21.8	381	21.9	<u>382</u>	<u>21.8</u>	383	21.8
453.povray	240	22.2	239	22.3	<u>239</u>	<u>22.2</u>	189	28.1	192	27.8	<u>190</u>	<u>28.1</u>
454.calculix	448	18.4	399	20.7	<u>416</u>	<u>19.8</u>	<u>346</u>	<u>23.8</u>	346	23.8	346	23.8
459.GemsFDTD	142	74.9	129	82.0	<u>136</u>	<u>78.3</u>	124	85.7	<u>127</u>	<u>83.4</u>	134	79.2
465.tonto	620	15.9	<u>615</u>	<u>16.0</u>	606	16.2	409	24.0	410	24.0	<u>410</u>	<u>24.0</u>
470.lbm	41.0	335	<u>41.4</u>	<u>332</u>	43.2	318	41.0	335	<u>41.4</u>	<u>332</u>	43.2	318
481.wrf	<u>370</u>	<u>30.2</u>	394	28.3	361	31.0	<u>370</u>	<u>30.2</u>	394	28.3	361	31.0
482.sphinx3	<u>513</u>	<u>38.0</u>	558	34.9	510	38.2	<u>489</u>	<u>39.9</u>	481	40.5	540	36.1

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'nodetv /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 18000 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

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



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General Notes

OMP_NUM_THREADS set to number of cores
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 -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:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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Base Optimization Flags (Continued)

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -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: basepeak = yes

470.lbm: basepeak = yes

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

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.dealIII: basepeak = yes

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Peak Optimization Flags (Continued)

450.soplex: basepeak = yes

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 -ipo -O3 -no-prec-div -opt-prefetch -parallel
-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: -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 -opt-prefetch -parallel
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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) -inline-calloc
-opt-malloc-options=3 -auto -unroll4
-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) -static -auto-ilp32
-ansi-alias

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -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/Intel-ic12.0-linux64-revB.20110316.html>

<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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