



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]2006 = **57.5**

PRIMERGY RX600 S6, Intel Xeon E7-4870, 2.40 GHz

SPECfp_base2006 = **51.4**

CPU2006 license: 19

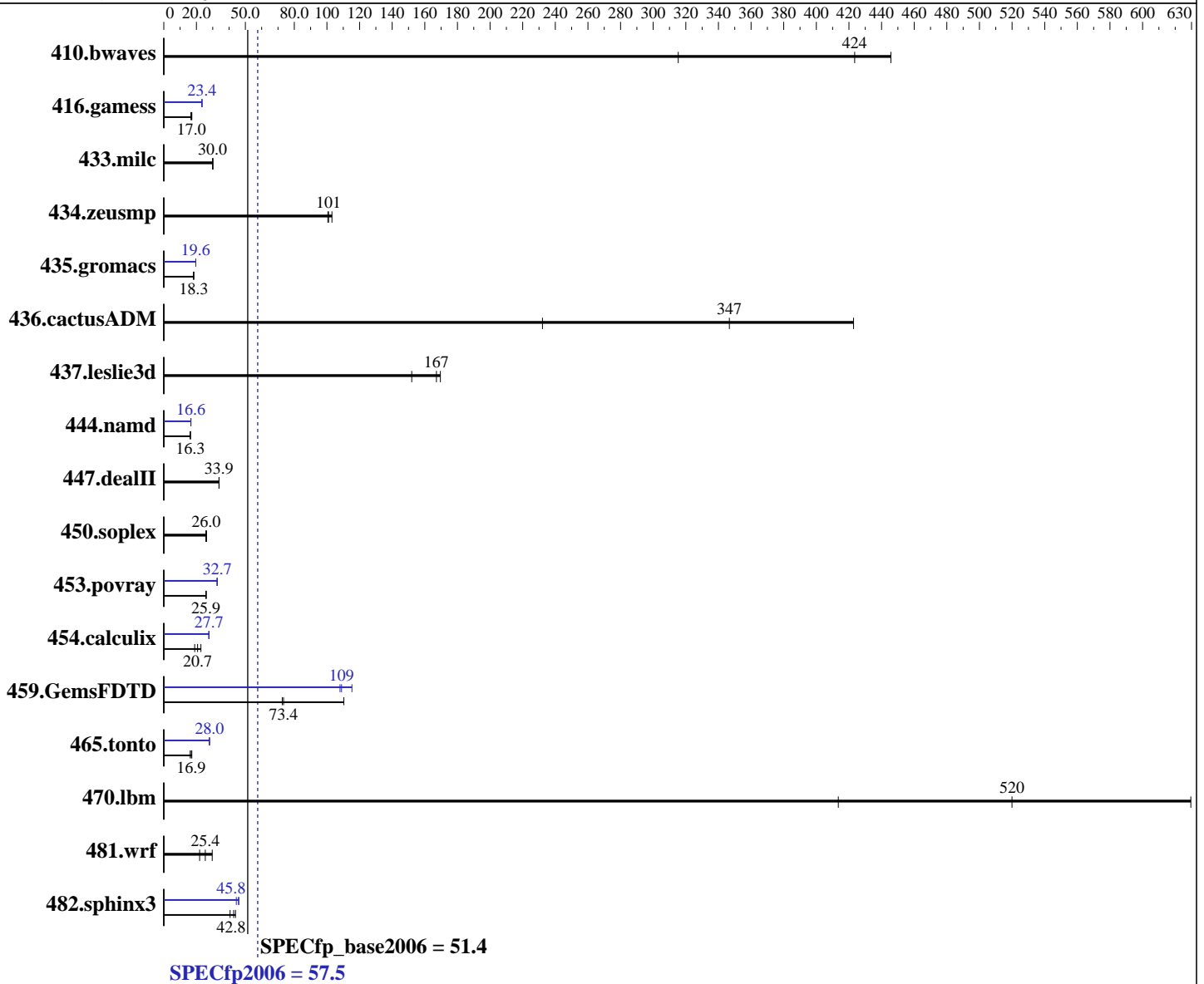
Test date: Jul-2011

Test sponsor: Fujitsu

Hardware Availability: Jul-2011

Tested by: Fujitsu

Software Availability: Jul-2011



Hardware

CPU Name: Intel Xeon E7-4870
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip
 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

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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: 30 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	<u>32.1</u>	<u>424</u>	30.5	446	43.1	315	<u>32.1</u>	<u>424</u>	30.5	446	43.1	315
416.gamess	<u>1155</u>	<u>17.0</u>	1178	16.6	1139	17.2	837	23.4	838	23.4	<u>837</u>	<u>23.4</u>
433.milc	306	30.0	<u>306</u>	<u>30.0</u>	305	30.1	306	30.0	<u>306</u>	<u>30.0</u>	305	30.1
434.zeusmp	<u>90.1</u>	<u>101</u>	88.3	103	90.5	101	<u>90.1</u>	<u>101</u>	88.3	103	90.5	101
435.gromacs	388	18.4	391	18.3	<u>391</u>	<u>18.3</u>	364	19.6	<u>364</u>	<u>19.6</u>	364	19.6
436.cactusADM	28.3	423	<u>34.5</u>	<u>347</u>	51.5	232	28.3	423	<u>34.5</u>	<u>347</u>	51.5	232
437.leslie3d	61.8	152	<u>56.2</u>	<u>167</u>	55.4	170	61.8	152	<u>56.2</u>	<u>167</u>	55.4	170
444.namd	<u>493</u>	<u>16.3</u>	493	16.3	493	16.3	483	16.6	483	16.6	<u>483</u>	<u>16.6</u>
447.dealII	<u>338</u>	<u>33.9</u>	338	33.9	338	33.9	<u>338</u>	<u>33.9</u>	338	33.9	338	33.9
450.soplex	323	25.8	<u>321</u>	<u>26.0</u>	319	26.2	323	25.8	<u>321</u>	<u>26.0</u>	319	26.2
453.povray	<u>205</u>	<u>25.9</u>	204	26.0	206	25.8	163	32.7	<u>163</u>	<u>32.7</u>	162	32.7
454.calculix	<u>398</u>	<u>20.7</u>	436	18.9	363	22.8	<u>298</u>	<u>27.7</u>	298	27.7	298	27.7
459.GemsFDTD	96.1	110	<u>145</u>	<u>73.4</u>	146	72.6	98.2	108	<u>97.4</u>	<u>109</u>	92.0	115
465.tonto	<u>583</u>	<u>16.9</u>	573	17.2	608	16.2	352	28.0	<u>352</u>	<u>28.0</u>	352	27.9
470.lbm	<u>26.4</u>	<u>520</u>	33.2	413	21.8	630	<u>26.4</u>	<u>520</u>	33.2	413	21.8	630
481.wrf	376	29.7	<u>439</u>	<u>25.4</u>	508	22.0	376	29.7	<u>439</u>	<u>25.4</u>	508	22.0
482.sphinx3	480	40.6	443	44.0	<u>455</u>	<u>42.8</u>	<u>426</u>	<u>45.8</u>	438	44.5	424	46.0

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
'nodenv /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
```

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: basepeak = yes

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>

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