



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]_rate2006 = 181

CELSIUS R920 (Intel Xeon E5-2637)

SPECfp_rate_base2006 = 177

CPU2006 license: 19

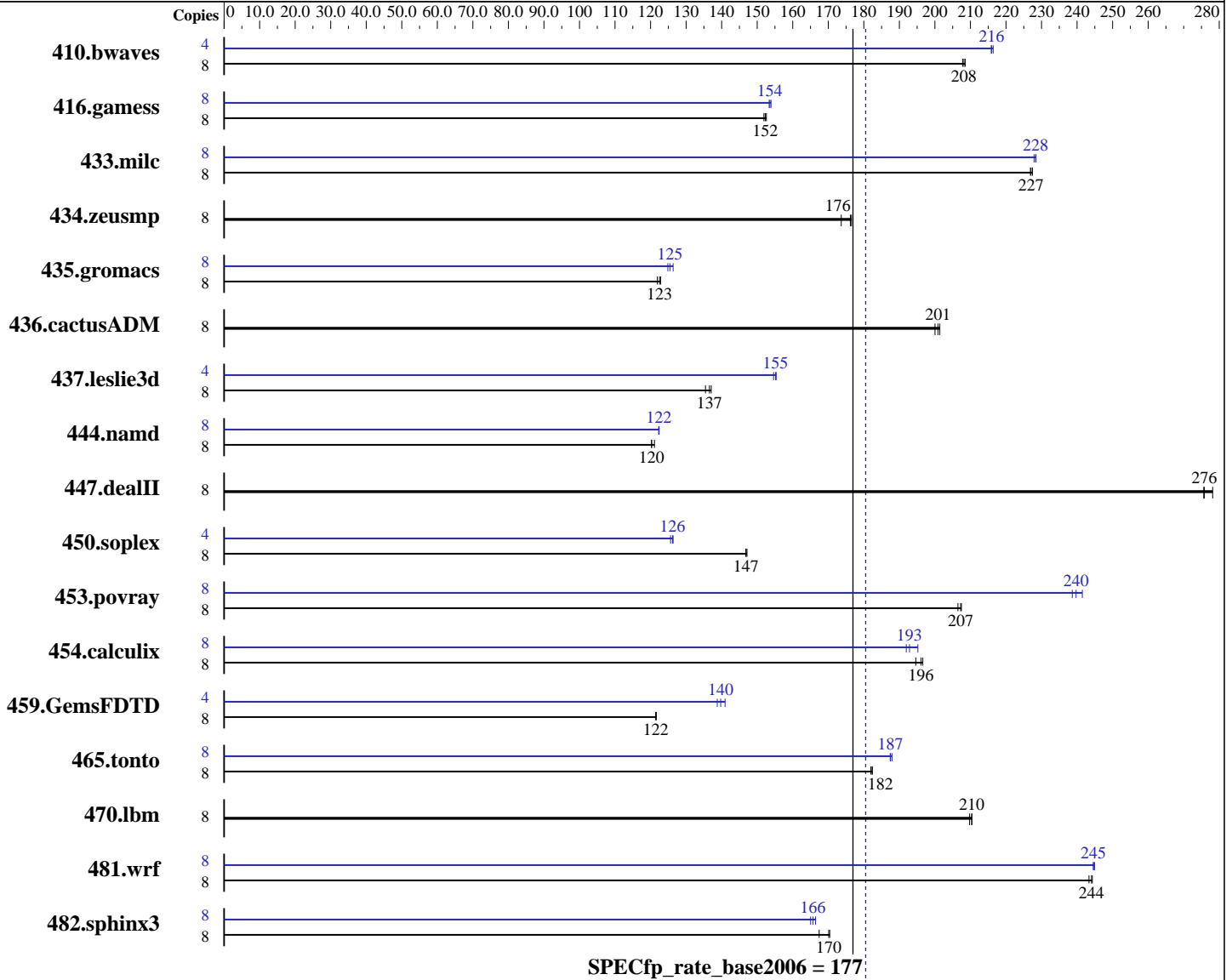
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E5-2637
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 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: Red Hat Enterprise Linux Server release 6.1, 2.6.32-131.0.15.el6.x86_64
 Compiler: C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ReiserFS
 System State: Run level 3 (multi - user)

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L3 Cache: 5 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (16 x 4 GB 2Rx8 PC3-12800R-11, ECC)
Disk Subsystem: 1 x SATA III, 500 GB, 7200 rpm
Other Hardware: None

Base Pointers: 32/64-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	<u>522</u>	<u>208</u>	521	209	523	208	4	<u>252</u>	<u>216</u>	251	216	252	216		
416.gamess	8	1027	153	<u>1029</u>	<u>152</u>	1031	152	8	1021	153	1018	154	<u>1020</u>	<u>154</u>		
433.milc	8	<u>323</u>	<u>227</u>	324	227	323	227	8	321	228	<u>322</u>	<u>228</u>	322	228		
434.zeusmp	8	412	177	<u>413</u>	<u>176</u>	419	174	8	412	177	<u>413</u>	<u>176</u>	419	174		
435.gromacs	8	469	122	<u>466</u>	<u>123</u>	465	123	8	452	126	457	125	<u>455</u>	<u>125</u>		
436.cactusADM	8	<u>476</u>	<u>201</u>	475	201	478	200	8	<u>476</u>	<u>201</u>	475	201	478	200		
437.leslie3d	8	549	137	555	135	<u>551</u>	<u>137</u>	4	242	155	243	155	<u>242</u>	<u>155</u>		
444.namd	8	<u>533</u>	<u>120</u>	530	121	533	120	8	525	122	524	122	<u>524</u>	<u>122</u>		
447.dealII	8	332	276	<u>332</u>	<u>276</u>	329	278	8	332	276	<u>332</u>	<u>276</u>	329	278		
450.soplex	8	453	147	454	147	<u>454</u>	<u>147</u>	4	<u>264</u>	<u>126</u>	264	126	266	126		
453.povray	8	205	207	<u>205</u>	<u>207</u>	206	206	8	176	241	178	239	<u>178</u>	<u>240</u>		
454.calculix	8	<u>337</u>	<u>196</u>	336	197	339	195	8	<u>342</u>	<u>193</u>	344	192	338	195		
459.GemsFDTD	8	<u>699</u>	<u>122</u>	698	122	699	121	4	301	141	<u>304</u>	<u>140</u>	306	139		
465.tonto	8	<u>432</u>	<u>182</u>	432	182	433	182	8	420	187	419	188	<u>420</u>	<u>187</u>		
470.lbm	8	524	210	522	210	<u>523</u>	<u>210</u>	8	524	210	522	210	<u>523</u>	<u>210</u>		
481.wrf	8	367	243	366	244	<u>366</u>	<u>244</u>	8	365	245	<u>365</u>	<u>245</u>	365	245		
482.sphinx3	8	<u>917</u>	<u>170</u>	931	167	915	170	8	937	166	945	165	<u>941</u>	<u>166</u>		

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 to generate numactl commands to bind each copy to a specific processor. For details, please see the config file. For full details on using numactl, please refer to your Linux documentation, 'man numactl'

Operating System Notes

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



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Platform Notes

BIOS settings:
Frequency Floor Override = Enabled

General Notes

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

Binaries compiled on a system with
2x Xeon E5-2690 CPU + 64 GB memory using
Red Hat Enterprise Linux Server release 6.1 (Santiago)
Added glibc-static-2.12-1.25.el6.x86_64.rpm
to enable static linking

Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
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

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Base Portability Flags (Continued)

```

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:

```

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xAVX -ipo -O3 -no-prec-div -static -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
```



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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
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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-opt-mem-layout-trans=3

```

```

470.lbm: basepeak = yes

```

```

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
-unroll2

```

C++ benchmarks:

```

444.namd: -xAVX(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: -xAVX(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

```

```

453.povray: -xAVX(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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static

```

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Peak Optimization Flags (Continued)

416.gamess: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(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

465.tonto: -xAVX(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: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -static
-auto-p32 -ansi-alias -opt-mem-layout-trans=3

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>
<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>
<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.xml>

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

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