



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

### SPECfp<sup>®</sup>\_rate2006 = 142

## CELSIUS M720 (Intel Xeon E5-1607)

### SPECfp\_rate\_base2006 = 138

CPU2006 license: 19

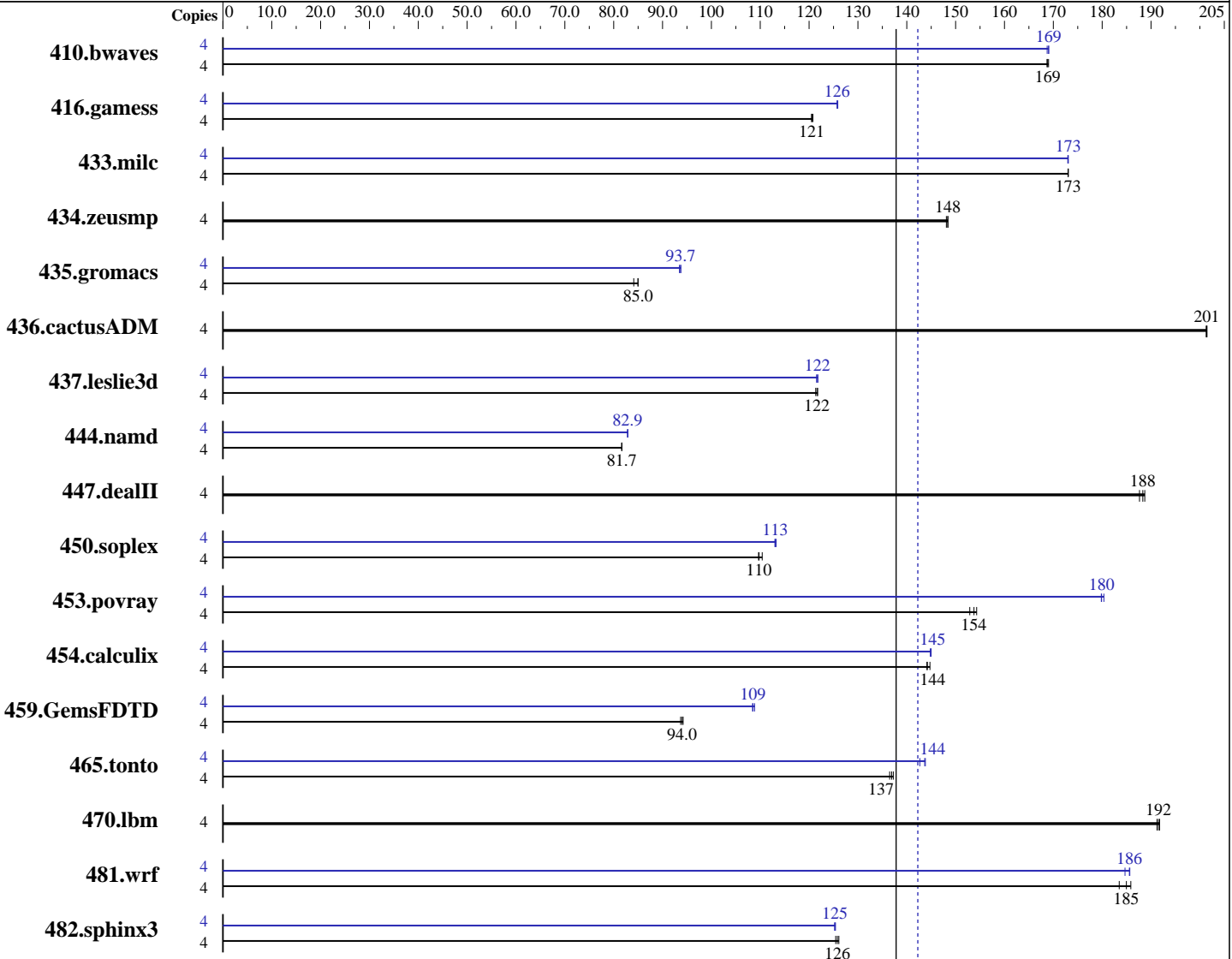
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2012

Hardware Availability: Mar-2012

Software Availability: Feb-2012



SPECfp\_rate\_base2006 = 138

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### Hardware

CPU Name: Intel Xeon E5-1607  
 CPU Characteristics:  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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 6.2, 2.6.32-220.0.el6.x86\_64  
 Compiler: C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.3.293 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: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (8 x 4 GB 2Rx8 PC3-12800E-11, ECC, running at 1067 MHz and CL8)  
 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	4	322	169	<b>322</b>	<b>169</b>	322	169	4	<b>322</b>	<b>169</b>	322	169	322	169		
416.gamess	4	648	121	<b>650</b>	<b>121</b>	650	120	4	623	126	<b>623</b>	<b>126</b>	622	126		
433.milc	4	<b>212</b>	<b>173</b>	212	173	212	173	4	212	173	<b>212</b>	<b>173</b>	212	173		
434.zeusmp	4	246	148	245	148	<b>245</b>	<b>148</b>	4	246	148	245	148	<b>245</b>	<b>148</b>		
435.gromacs	4	340	84.1	<b>336</b>	<b>85.0</b>	336	85.0	4	305	93.7	306	93.4	<b>305</b>	<b>93.7</b>		
436.cactusADM	4	<b>237</b>	<b>201</b>	237	201	237	201	4	<b>237</b>	<b>201</b>	237	201	237	201		
437.leslie3d	4	309	122	310	121	<b>309</b>	<b>122</b>	4	<b>309</b>	<b>122</b>	309	122	309	122		
444.namd	4	393	81.7	393	81.6	<b>393</b>	<b>81.7</b>	4	387	82.8	<b>387</b>	<b>82.9</b>	387	82.9		
447.dealII	4	<b>243</b>	<b>188</b>	242	189	244	188	4	<b>243</b>	<b>188</b>	242	189	244	188		
450.soplex	4	<b>304</b>	<b>110</b>	304	110	302	110	4	295	113	295	113	<b>295</b>	<b>113</b>		
453.povray	4	139	153	138	154	<b>138</b>	<b>154</b>	4	<b>118</b>	<b>180</b>	118	180	118	180		
454.calculix	4	<b>229</b>	<b>144</b>	229	144	228	145	4	<b>228</b>	<b>145</b>	228	145	228	145		
459.GemsFDTD	4	453	93.7	<b>451</b>	<b>94.0</b>	450	94.2	4	<b>391</b>	<b>109</b>	390	109	391	108		
465.tonto	4	287	137	288	136	<b>288</b>	<b>137</b>	4	274	144	<b>274</b>	<b>144</b>	276	143		
470.lbm	4	287	192	<b>287</b>	<b>192</b>	287	191	4	287	192	<b>287</b>	<b>192</b>	287	191		
481.wrf	4	240	186	244	183	<b>242</b>	<b>185</b>	4	<b>241</b>	<b>186</b>	241	186	242	185		
482.sphinx3	4	<b>620</b>	<b>126</b>	618	126	621	125	4	<b>622</b>	<b>125</b>	623	125	622	125		

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 taskset commands to bind each copy to a specific processor.  
 For details, please see the config file.

## 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 E5-2650 CPU + 64 GB memory using  
Red Hat Enterprise Linux Server release 6.2 (Santiago)  
The RPMs glibc-static-2.12-1.47.el6.x86\_64.rpm  
and glibc-static-2.12-1.47.el6.i686.rpm  
were added 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

## 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

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## Base Portability Flags (Continued)

```

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](mailto:webmaster@spec.org).

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