# SPEC® CFP2006 Result

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## Fujitsu

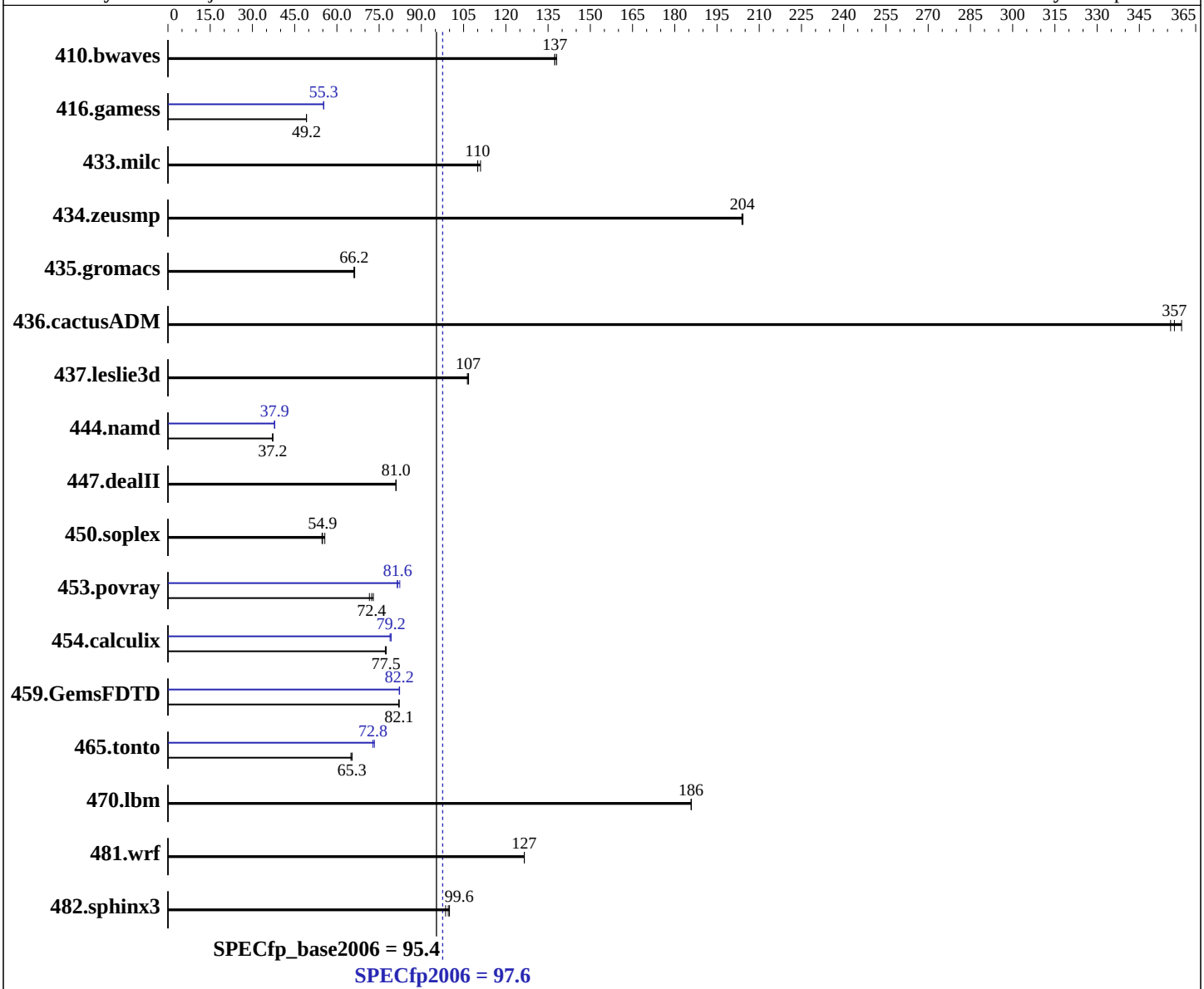
PRIMERGY TX1320 M2, Intel Xeon E3-1260L v5, 2.90 GHz

SPECfp®2006 = 97.6

SPECfp_base2006 = 95.4

**CPU2006 license:** 19
**Test sponsor:** Fujitsu
**Tested by:** Fujitsu

**Test date:** Nov-2015
**Hardware Availability:** Feb-2016
**Software Availability:** Sep-2015




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E3-1260L v5 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.90 GHz |
| CPU MHz: | 2900 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip, 2 threads/core |
| 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: | SUSE Linux Enterprise Server 12 (x86_64) Kernel 3.12.48-52.27-default |
| Compiler: | C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |
| System State: | Run level 3 (multi-user) |

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None

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 | 98.9 | 137 | 98.4 | 138 | **98.9** | **137** | 98.9 | 137 | 98.4 | 138 | **98.9** | **137** |
| 416.gamess | **398** | **49.2** | 398 | 49.2 | 398 | 49.2 | **354** | **55.3** | 354 | 55.3 | 354 | 55.4 |
| 433.milc | 82.7 | 111 | **83.4** | **110** | 83.5 | 110 | 82.7 | 111 | **83.4** | **110** | 83.5 | 110 |
| 434.zeusmp | 44.6 | 204 | **44.6** | **204** | 44.6 | 204 | 44.6 | 204 | **44.6** | **204** | 44.6 | 204 |
| 435.gromacs | 108 | 66.3 | **108** | **66.2** | 108 | 66.1 | 108 | 66.3 | **108** | **66.2** | 108 | 66.1 |
| 436.cactusADM | 33.2 | 360 | 33.6 | 356 | **33.4** | **357** | 33.2 | 360 | 33.6 | 356 | **33.4** | **357** |
| 437.leslie3d | 88.0 | 107 | **88.2** | **107** | 88.4 | 106 | 88.0 | 107 | **88.2** | **107** | 88.4 | 106 |
| 444.namd | 215 | 37.2 | 216 | 37.2 | **216** | **37.2** | **212** | **37.9** | 212 | 37.8 | 211 | 37.9 |
| 447.dealII | 141 | 81.0 | **141** | **81.0** | 141 | 80.9 | 141 | 81.0 | **141** | **81.0** | 141 | 80.9 |
| 450.soplex | 150 | 55.7 | **152** | **54.9** | 152 | 54.7 | 150 | 55.7 | **152** | **54.9** | 152 | 54.7 |
| 453.povray | 72.9 | 72.9 | 74.4 | 71.5 | **73.5** | **72.4** | 64.6 | 82.3 | 65.3 | 81.4 | **65.2** | **81.6** |
| 454.calculix | **107** | **77.5** | 106 | 77.5 | 107 | 77.2 | 104 | 79.2 | **104** | **79.2** | 105 | 78.9 |
| 459.GemsFDTD | **129** | **82.1** | 129 | 82.1 | 130 | 81.9 | **129** | **82.2** | 129 | 82.2 | 129 | 82.3 |
| 465.tonto | 151 | 65.4 | 151 | 65.0 | **151** | **65.3** | **135** | **72.8** | 135 | 72.8 | 134 | 73.3 |
| 470.lbm | **73.9** | **186** | 73.9 | 186 | 73.9 | 186 | **73.9** | **186** | 73.9 | 186 | 73.9 | 186 |
| 481.wrf | **88.3** | **127** | 88.3 | 127 | 88.3 | 127 | **88.3** | **127** | 88.3 | 127 | 88.3 | 127 |
| 482.sphinx3 | **196** | **99.6** | 195 | 100 | 198 | 98.6 | **196** | **99.6** | 195 | 100 | 198 | 98.6 |

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

```
BIOS configuration:
Sysinfo program /home/SPECcpu2006-RH72-ICC16-update/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on TX1320M2 Wed Nov 11 15:12:39 2015

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
```

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## Platform Notes (Continued)

```
      model name : Intel(R) Xeon(R) CPU E3-1260L v5 @ 2.90GHz
         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 : 4
         siblings  : 8
         physical 0: cores 0 1 2 3
      cache size : 8192 KB

   From /proc/meminfo
      MemTotal:       65906076 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      SUSE Linux Enterprise Server 12

   From /etc/*release* /etc/*version*
      SuSE-release:
         SUSE Linux Enterprise Server 12 (x86_64)
         VERSION = 12
         PATCHLEVEL = 0
         # This file is deprecated and will be removed in a future service pack or
         release.
         # Please check /etc/os-release for details about this release.
      os-release:
         NAME="SLES"
         VERSION="12"
         VERSION_ID="12"
         PRETTY_NAME="SUSE Linux Enterprise Server 12"
         ID="sles"
         ANSI_COLOR="0;32"
         CPE_NAME="cpe:/o:suse:sles:12"

   uname -a:
      Linux TX1320M2 3.12.48-52.27-default #1 SMP Mon Oct 5 10:08:10 UTC 2015
      (314f0e3) x86_64 x86_64 x86_64 GNU/Linux

   run-level 5 Nov 11 10:51

   SPEC is set to: /home/SPECcpu2006-RH72-ICC16-update
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda3      xfs   1.6T   23G  1.6T   2% /home
   Additional information from dmidecode:

      Warning: Use caution when you interpret this section. The 'dmidecode' program
      reads system data which is "intended to allow hardware to be accurately
      determined", but the intent may not be met, as there are frequent changes to
      hardware, firmware, and the "DMTF SMBIOS" standard.
```

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## Platform Notes (Continued)

```
    BIOS FUJITSU // American Megatrends Inc. V5.0.0.11 R1.1.0 for D3373-A1x
    10/30/2015
    Memory:
     4x SK Hynix HMA82GU7MFR8N-TF 16 GB 2 rank 2133 MHz

  (End of data from sysinfo program)
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/SPECcpu2006-RH72-ICC16-update/libs/32:/home/SPECcpu2006-RH72-ICC16-update/libs/64:/home/SPECcpu2006-RH72-ICC16-update/sh"
OMP_NUM_THREADS = "4"

 Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
 memory using RedHat EL 7.1
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled

 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
```

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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:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

Continued on next page

## Peak Optimization Flags (Continued)

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -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-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml


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