# SPEC® CFP2006 Result

## NEC Corporation

**Express5800/T110i-S (Intel Xeon E3-1230 v6)**

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td>101</td>
</tr>
</tbody>
</table>

**CPU2006 license**: 9006  
**Test sponsor**: NEC Corporation  
**Tested by**: NEC Corporation  
**Test date**: Apr-2017  
**Hardware Availability**: Apr-2017  
**Software Availability**: Jan-2017

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td></td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>55.8</td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td></td>
<td>225</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td></td>
<td>385</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td></td>
<td>117</td>
</tr>
<tr>
<td>444.namd</td>
<td>38.3</td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>79.2</td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td></td>
<td>56.8</td>
</tr>
<tr>
<td>453.povray</td>
<td></td>
<td>82.1</td>
</tr>
<tr>
<td>454.calculix</td>
<td></td>
<td>72.5</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td></td>
<td>80.8</td>
</tr>
<tr>
<td>465.tonto</td>
<td></td>
<td>91.9</td>
</tr>
<tr>
<td>470.lbm</td>
<td></td>
<td>90.2</td>
</tr>
<tr>
<td>481.wrf</td>
<td></td>
<td>74.0</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td></td>
<td>69.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>139</td>
</tr>
<tr>
<td></td>
<td></td>
<td>103</td>
</tr>
</tbody>
</table>

### Software

**Operating System**: Red Hat Enterprise Linux Server release 7.3 (Maipo)  
**Kernel**: 3.10.0-514.6.1.el7.x86_64  
**Compiler**: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux  
**Auto Parallel**: Yes  
**File System**: ext4

### Hardware

- **CPU Name**: Intel Xeon E3-1230 v6  
- **CPU Characteristics**: Intel Turbo Boost Technology up to 3.90 GHz  
- **CPU MHz**: 3500  
- **FPU**: Integrated  
- **CPU(s) enabled**: 4 cores, 1 chip, 4 cores/chip  
- **Primary Cache**: 32 KB I + 32 KB D on chip per core  
- **Secondary Cache**: 256 KB I+D on chip per core  

Continued on next page
## SPEC CFP2006 Result

**NEC Corporation**

**Express5800/T110i-S (Intel Xeon E3-1230 v6)**

**SPECfp2006 =** 103  
**SPECfp_base2006 =** 101

**CPU2006 license:** 9006  
**Test date:** Apr-2017  
**Test sponsor:** NEC Corporation  
**Hardware Availability:** Apr-2017  
**Tested by:** NEC Corporation  
**Software Availability:** Jan-2017

### System State:
- **Run level:** 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other Software:** None

### Other Cache:
- None

### Memory:
- 32 GB (2 x 16 GB 2Rx8 PC4-2400T-E)

### Disk Subsystem:
- 1 x 1 TB SATA, 7200 RPM

### Other Hardware:
- None

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>86.0</td>
<td>158</td>
<td>85.8</td>
<td>158</td>
<td>86.0</td>
<td>158</td>
<td>86.0</td>
<td>158</td>
<td>85.8</td>
<td>158</td>
<td>86.0</td>
<td>158</td>
</tr>
<tr>
<td>416.gamess</td>
<td>369</td>
<td>53.1</td>
<td><strong>369</strong></td>
<td>53.1</td>
<td>369</td>
<td>53.0</td>
<td>351</td>
<td>55.7</td>
<td>351</td>
<td>55.8</td>
<td>351</td>
<td>55.8</td>
</tr>
<tr>
<td>433.milc</td>
<td>81.3</td>
<td>113</td>
<td><strong>81.2</strong></td>
<td>113</td>
<td>81.0</td>
<td>113</td>
<td>81.3</td>
<td>113</td>
<td><strong>81.2</strong></td>
<td>113</td>
<td>81.0</td>
<td>113</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>40.4</td>
<td>225</td>
<td><strong>40.4</strong></td>
<td>225</td>
<td><strong>40.4</strong></td>
<td>225</td>
<td>40.4</td>
<td>225</td>
<td>40.4</td>
<td>225</td>
<td>40.4</td>
<td>225</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>103</td>
<td>69.6</td>
<td>103</td>
<td>69.3</td>
<td><strong>103</strong></td>
<td><strong>69.5</strong></td>
<td>103</td>
<td>69.6</td>
<td>103</td>
<td>69.3</td>
<td><strong>103</strong></td>
<td><strong>69.5</strong></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>31.3</td>
<td>381</td>
<td><strong>31.1</strong></td>
<td>385</td>
<td>31.0</td>
<td>386</td>
<td>31.3</td>
<td>381</td>
<td><strong>31.1</strong></td>
<td>385</td>
<td>31.0</td>
<td>386</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>80.4</td>
<td>117</td>
<td><strong>80.6</strong></td>
<td>117</td>
<td>80.7</td>
<td>116</td>
<td>80.4</td>
<td>117</td>
<td><strong>80.6</strong></td>
<td>117</td>
<td>80.7</td>
<td>116</td>
</tr>
<tr>
<td>444.namd</td>
<td>213</td>
<td>37.6</td>
<td>214</td>
<td>37.6</td>
<td><strong>213</strong></td>
<td><strong>37.6</strong></td>
<td>209</td>
<td>38.3</td>
<td>210</td>
<td>38.1</td>
<td><strong>210</strong></td>
<td><strong>38.3</strong></td>
</tr>
<tr>
<td>447.dealII</td>
<td>144</td>
<td>79.2</td>
<td>145</td>
<td>79.1</td>
<td><strong>145</strong></td>
<td><strong>79.2</strong></td>
<td>144</td>
<td>79.2</td>
<td>145</td>
<td>79.1</td>
<td><strong>145</strong></td>
<td><strong>79.2</strong></td>
</tr>
<tr>
<td>450.soplex</td>
<td><strong>147</strong></td>
<td>56.8</td>
<td>146</td>
<td>57.1</td>
<td>147</td>
<td>56.8</td>
<td><strong>147</strong></td>
<td>56.8</td>
<td>146</td>
<td>57.1</td>
<td>147</td>
<td>56.8</td>
</tr>
<tr>
<td>453.povray</td>
<td>73.4</td>
<td>72.4</td>
<td><strong>73.3</strong></td>
<td><strong>72.5</strong></td>
<td>71.9</td>
<td>74.0</td>
<td>63.1</td>
<td>84.3</td>
<td><strong>64.8</strong></td>
<td><strong>82.1</strong></td>
<td>65.2</td>
<td>81.6</td>
</tr>
<tr>
<td>454.calculix</td>
<td><strong>102</strong></td>
<td>80.8</td>
<td>102</td>
<td>80.8</td>
<td>102</td>
<td>80.7</td>
<td>102</td>
<td>81.1</td>
<td>102</td>
<td>81.0</td>
<td><strong>102</strong></td>
<td><strong>81.0</strong></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td><strong>118</strong></td>
<td>90.2</td>
<td>118</td>
<td>90.1</td>
<td>118</td>
<td>90.3</td>
<td><strong>115</strong></td>
<td><strong>91.9</strong></td>
<td><strong>115</strong></td>
<td><strong>91.9</strong></td>
<td>116</td>
<td>91.8</td>
</tr>
<tr>
<td>465.tonto</td>
<td>141</td>
<td>70.0</td>
<td>141</td>
<td>69.7</td>
<td><strong>141</strong></td>
<td><strong>69.9</strong></td>
<td><strong>133</strong></td>
<td><strong>74.0</strong></td>
<td>133</td>
<td>73.9</td>
<td>133</td>
<td>74.2</td>
</tr>
<tr>
<td>470.lbm</td>
<td>68.5</td>
<td>200</td>
<td><strong>68.6</strong></td>
<td><strong>200</strong></td>
<td>68.6</td>
<td>200</td>
<td>68.5</td>
<td>200</td>
<td><strong>68.6</strong></td>
<td><strong>200</strong></td>
<td>68.6</td>
<td>200</td>
</tr>
<tr>
<td>481.wrf</td>
<td><strong>80.3</strong></td>
<td>139</td>
<td>80.2</td>
<td>139</td>
<td>80.5</td>
<td>139</td>
<td><strong>80.3</strong></td>
<td><strong>139</strong></td>
<td>80.2</td>
<td>139</td>
<td><strong>80.3</strong></td>
<td><strong>139</strong></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>188</td>
<td>104</td>
<td><strong>188</strong></td>
<td><strong>103</strong></td>
<td>189</td>
<td>103</td>
<td>188</td>
<td>104</td>
<td><strong>188</strong></td>
<td><strong>103</strong></td>
<td>189</td>
<td>103</td>
</tr>
</tbody>
</table>

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 Settings:**
- Power Management Policy: Custom
- Energy Performance: Performance
- Hyper-Threading: Disabled
### NEC Corporation

**Express5800/T110i-S (Intel Xeon E3-1230 v6)**

| SPECfp2006 = | 103 |
| SPECfp_base2006 = | 101 |

**CPU2006 license:** 9006  
**Test sponsor:** NEC Corporation  
**Tested by:** NEC Corporation  

| Test date: | Apr-2017 |
| Hardware Availability: | Apr-2017 |
| Software Availability: | Jan-2017 |

#### General Notes

- Environment variables set by runspec before the start of the run:
  - `KMP_AFFINITY = "granularity=fine,compact,1,0"
  - `LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh10.2"
  - `OMP_NUM_THREADS = "4"

- Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2
- Transparent Huge Pages enabled by default.

#### 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.gamest`: `-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.GemsFD`: `-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`
NEC Corporation
Express5800/T110i-S (Intel Xeon E3-1230 v6)

SPECfp2006 = 103
SPECfp_base2006 = 101

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation

Test date: Apr-2017
Hardware Availability: Apr-2017
Software Availability: Jan-2017

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

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

Continued on next page
Peak Optimization Flags (Continued)

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:
410.bwaves: basepeak = yes
416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -unroll2 -inline-level=0
   -qopt-prefetch -parallel
465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -inline-calloc -qopt-malloc-options=3
   -auto -unroll4

Benchmarks using both Fortran and C:
435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32
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-ic17.0-official-linux64.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-110i-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-110i-RevA.xml
<table>
<thead>
<tr>
<th>NEC Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Express5800/T110i-S (Intel Xeon E3-1230 v6)</td>
</tr>
<tr>
<td>SPECfp2006 = 103</td>
</tr>
<tr>
<td>SPECfp_base2006 = 101</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPECfp2006 license: 9006</th>
<th>Test date: Apr-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: NEC Corporation</td>
<td>Hardware Availability: Apr-2017</td>
</tr>
<tr>
<td>Tested by: NEC Corporation</td>
<td>Software Availability: Jan-2017</td>
</tr>
</tbody>
</table>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Originally published on 30 May 2017.