# SPEC® CINT2006 Result

## NEC Corporation

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

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>75.3</th>
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<tr>
<td>SPECint_base2006</td>
<td>72.8</td>
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**CPU2006 license:** 9006  
**Test sponsor:** NEC Corporation  
**Tested by:** NEC Corporation  
**Test date:** Apr-2017  
**Hardware Availability:** Apr-2017  
**Software Availability:** Jan-2017

### SPEC int2006 Result

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>perlbench</td>
<td>48.6</td>
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<tr>
<td>bzip2</td>
<td>126.0</td>
</tr>
<tr>
<td>gcc</td>
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<tr>
<td>mcf</td>
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<tr>
<td>gobmk</td>
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<tr>
<td>hmer</td>
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<tr>
<td>sjeng</td>
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<tr>
<td>libquantum</td>
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<tr>
<td>h264ref</td>
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<tr>
<td>omnetpp</td>
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<tr>
<td>astar</td>
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</tr>
<tr>
<td>xalancbmk</td>
<td>126.0</td>
</tr>
</tbody>
</table>

**SPECint2006 = 75.3**

### 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 L1 + 32 KB D on chip per core  
- **Secondary Cache:** 256 KB L1+D on chip per core  
- **L3 Cache:** 8 MB L1+D on chip per core  
- **Memory:** 32 GB (2 x 16 GB 2Rx8 PC4-2400T-E)  
- **Disk Subsystem:** 1 x 1 TB SATA, 7200 RPM  
- **Other Hardware:** None

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 7.3 (Maipo)  
- **Compiler:** C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux  
- **Auto Parallel:** Yes  
- **File System:** ext4  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 32/64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other Software:** Microquill SmartHeap V10.2

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Standard Performance Evaluation Corporation  
info@spec.org  
http://www.spec.org/
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Results Table

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<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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<tr>
<td>400.perlbench</td>
<td>199</td>
<td>49.2</td>
<td>201</td>
<td>48.6</td>
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<td>403.gcc</td>
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<td>445.gobmk</td>
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<td>35.2</td>
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<td>456.hmmer</td>
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<td><strong>74.0</strong></td>
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<td>40.1</td>
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<td>174</td>
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</table>

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.

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

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
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.
### NEC Corporation

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

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### Base Compiler Invocation

- **C benchmarks:**
  
  ```
  icc -m64
  ```

- **C++ benchmarks:**
  
  ```
  icpc -m64
  ```

---

### Base Portability Flags

- 400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
- 401.bzip2: `-DSPEC_CPU_LP64`
- 403.gcc: `-DSPEC_CPU_LP64`
- 429.mcf: `-DSPEC_CPU_LP64`
- 456.hmmer: `-DSPEC_CPU_LP64`
- 458.sjeng: `-DSPEC_CPU_LP64`
- 462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
- 464.h264ref: `-DSPEC_CPU_LP64`
- 471.omnetpp: `-DSPEC_CPU_LP64`
- 473.astar: `-DSPEC_CPU_LP64`
- 483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

---

### Base Optimization Flags

- **C benchmarks:**
  
  ```
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch -auto-p32
  ```

- **C++ benchmarks:**
  
  ```
  -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
  ```

---

### Base Other Flags

- **C benchmarks:**
  
  ```
  403.gcc: -Dalloca=_alloca
  ```

---

### Peak Compiler Invocation

- **C benchmarks (except as noted below):**
  
  ```
  icc -m64
  ```
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Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

445.gobmk: `icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

C++ benchmarks (except as noted below):

`icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

429.mcf: `-DSPEC_CPU_LP64`

445.gobmk: `-D_FILE_OFFSET_BITS=64`

456.hmmer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

464.h264ref: `-DSPEC_CPU_LP64`

471.omnetpp: `-D_FILE_OFFSET_BITS=64`

473.astar: `-DSPEC_CPU_LP64`

483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-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) -qopt-prefetch`

401.bzip2: `-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 -auto-ilp32 -qopt-prefetch`

403.gcc: `-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc`

`-qopt-malloc-options=3 -auto-ilp32`

429.mcf: `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel`

`-qopt-prefetch -auto-p32`

445.gobmk: `-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)`

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**Peak Optimization Flags (Continued)**

456.hmmer: basepeak = yes

458.sjeng: -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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -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) -qopt-ra-region-strategy=block  
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

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**Peak Other Flags**

C benchmarks:

403.gcc: -Dalloca=_alloca

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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
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For other inquiries, please contact webmaster@spec.org.

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