**NEC Corporation**

**Express5800/T110g-E (Intel Xeon E3-1220 v3)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2006 license</td>
<td>9006</td>
</tr>
<tr>
<td>Test sponsor</td>
<td>NEC Corporation</td>
</tr>
<tr>
<td>Tested by</td>
<td>NEC Corporation</td>
</tr>
<tr>
<td>Test date</td>
<td>Sep-2014</td>
</tr>
<tr>
<td>Hardware Availability</td>
<td>Jul-2014</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Jan-2014</td>
</tr>
</tbody>
</table>

**SPECint\_rate2006 = 177**

| SPECint\_rate_base2006 = 170 |

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>134</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>83.1</td>
</tr>
<tr>
<td>403.gcc</td>
<td>127</td>
</tr>
<tr>
<td>429.mcf</td>
<td>245</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>104</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>240</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>238</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>160</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>239</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>90.8</td>
</tr>
<tr>
<td>473.astar</td>
<td>86.3</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>206</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E3-1220 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz
- **CPU MHz:** 3100
- **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
- **L3 Cache:** 8 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)
- **Disk Subsystem:** 1 x 500 GB SATA, 7200 RPM
- **Other Hardware:** None

**Software**

- **Operating System:** Red Hat Enterprise Linux Server release 6.5 (Santiago)
- **Compiler:** C/C++: Version 14.0.2.144 of Intel C++ Studio XE for Linux
- **Auto Parallel:** No
- **File System:** ext4
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V8.1
SPEC CINT2006 Result

NEC Corporation

Express5800/T110g-E (Intel Xeon E3-1220 v3)

SPECint_rate2006 = 177
SPECint_rate_base2006 = 170

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation
Test date: Sep-2014
Hardware Availability: Jul-2014
Software Availability: Jan-2014

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>4</td>
<td>292</td>
<td>135</td>
<td>292</td>
<td>134</td>
<td>290</td>
<td>135</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>4</td>
<td>469</td>
<td>82.4</td>
<td>469</td>
<td>82.3</td>
<td>473</td>
<td>81.6</td>
</tr>
<tr>
<td>403.gcc</td>
<td>4</td>
<td>253</td>
<td>127</td>
<td>254</td>
<td>127</td>
<td>252</td>
<td>128</td>
</tr>
<tr>
<td>429.mcf</td>
<td>4</td>
<td>148</td>
<td>247</td>
<td>157</td>
<td>232</td>
<td>149</td>
<td>245</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>4</td>
<td>405</td>
<td>104</td>
<td>406</td>
<td>103</td>
<td>405</td>
<td>104</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>4</td>
<td>157</td>
<td>238</td>
<td>157</td>
<td>237</td>
<td>156</td>
<td>239</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>4</td>
<td>394</td>
<td>123</td>
<td>393</td>
<td>123</td>
<td>394</td>
<td>123</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>4</td>
<td>51.9</td>
<td>1600</td>
<td>51.7</td>
<td>1600</td>
<td>51.5</td>
<td>1610</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>4</td>
<td>417</td>
<td>212</td>
<td>412</td>
<td>215</td>
<td>416</td>
<td>213</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>4</td>
<td>298</td>
<td>83.9</td>
<td>290</td>
<td>86.3</td>
<td>286</td>
<td>87.4</td>
</tr>
<tr>
<td>473.astar</td>
<td>4</td>
<td>315</td>
<td>89.2</td>
<td>313</td>
<td>89.6</td>
<td>312</td>
<td>89.9</td>
</tr>
<tr>
<td>483.xalancbk</td>
<td>4</td>
<td>133</td>
<td>208</td>
<td>134</td>
<td>206</td>
<td>136</td>
<td>202</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. 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.

Operating System Notes

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

Platform Notes

BIOS Settings:
Energy Performance: Performance

General Notes

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

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runcase command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
**NEC Corporation**  
Express5800/T110g-E (Intel Xeon E3-1220 v3)

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>177</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>170</td>
</tr>
</tbody>
</table>

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

**Test date:** Sep-2014  
**Hardware Availability:** Jul-2014  
**Software Availability:** Jan-2014

### Base Compiler Invocation

C benchmarks:  
- `icc -m32`

C++ benchmarks:  
- `icpc -m32`

### Base Portability Flags

- 400.perlbench: `-DSPEC_CPU_LINUX_IA32`
- 462.libquantum: `-DSPEC_CPU_LINUX`
- 483.xalancbmk: `-DSPEC_CPU_LINUX`

### Base Optimization Flags

C benchmarks:  
- `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch`  
- `-opt-mem-layout-trans=3`

C++ benchmarks:  
- `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch`  
- `-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap`

### Base Other Flags

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

### Peak Compiler Invocation

C benchmarks (except as noted below):  
- `icc -m32`

- 400.perlbench: `icc -m64`
- 401.bzip2: `icc -m64`
- 456.hmmer: `icc -m64`
- 458.sjeng: `icc -m64`

Continued on next page
SPEC CINT2006 Result

NEC Corporation

Express5800/T110g-E (Intel Xeon E3-1220 v3)

SPECint_rate2006 = 177
SPECint_rate_base2006 = 170

CPU2006 license: 9006
Test date: Sep-2014
Test sponsor: NEC Corporation
Hardware Availability: Jul-2014
Tested by: NEC Corporation
Software Availability: Jan-2014

Peak Compiler Invocation (Continued)

C++ benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32
401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias
403.gcc: basepeak = yes
429.mcf: basepeak = yes
445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3
456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll12 -auto-ilp32
458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll14 -auto-ilp32
462.libquantum: basepeak = yes
464.h264ref: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll12 -ansi-alias

C++ benchmarks:

Continued on next page
SPEC CINT2006 Result

NEC Corporation

Express5800/T110g-E (Intel Xeon E3-1220 v3)

SPECint_rate2006 = 177
SPECint_rate_base2006 = 170

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

Test date: Sep-2014
Hardware Availability: Jul-2014
Software Availability: Jan-2014

Peak Optimization Flags (Continued)

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-o3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/sh -lsmartheap

473.astar: basepeak = yes
483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120-RevB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120-RevB.xml

SPEC and SPECint 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  8 October 2014.