NEC Corporation

Express5800/140Hf
(Intel Xeon processor 7140M)

SPECint_rate2006 = 83.5
SPECint_rate_base2006 = 77.6

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation
Hardware Availability: Oct-2006
Test date: Sep-2007
Software Availability: Jun-2007

Hardware

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon 7140M</td>
<td>Operating System: 64-Bit SUSE LINUX Enterprise Server 10, Kernel 2.6.16.21-0.8-smp for x86_64</td>
</tr>
<tr>
<td>CPU Characteristics: 3.40 GHz, 800MHz bus</td>
<td>Compiler: Intel C++ Compiler for IA32/EM64T application, Version 10.0 - Build 20070426 Package ID: l_cc_p_10.0.023</td>
</tr>
<tr>
<td>CPU MHz: 3400</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>File System: ext2</td>
</tr>
<tr>
<td>CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 2 threads/core</td>
<td>System State: Multiuser, Runlevel 3</td>
</tr>
<tr>
<td>CPU(s) orderable: 1,2,4 chips</td>
<td>Base Pointers: 32-bit</td>
</tr>
<tr>
<td>Primary Cache: 12 K micro-ops I + 16 KB D on chip per core</td>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Secondary Cache: 1 MB I+D on chip per core</td>
<td>Other Software: MicroQuill SmartHeap library 8.1</td>
</tr>
<tr>
<td>L3 Cache: 16 MB I+D on chip per chip</td>
<td></td>
</tr>
<tr>
<td>Other Cache: None</td>
<td></td>
</tr>
<tr>
<td>Memory: 32 GB (16x2 GB PC2-3200R, 2 rank, CL3-3-3, ECC)</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem: 1x146.5 GB SAS, 15000RPM</td>
<td></td>
</tr>
<tr>
<td>Other Hardware: None</td>
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</tr>
</tbody>
</table>

Software

Operating System: 64-Bit SUSE LINUX Enterprise Server 10, Kernel 2.6.16.21-0.8-smp for x86_64
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SPEC CINT2006 Result

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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>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>16</td>
<td>1638</td>
<td>95.4</td>
<td>1630</td>
<td>95.9</td>
<td>1623</td>
<td>96.3</td>
<td>16</td>
<td>1441</td>
<td>109</td>
<td>1455</td>
<td>107</td>
<td>1384</td>
<td>113</td>
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<tr>
<td>401.bzip2</td>
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<td>89.2</td>
<td>1738</td>
<td>88.9</td>
<td>1729</td>
<td>89.3</td>
<td>16</td>
<td>1605</td>
<td>96.3</td>
<td>1606</td>
<td>96.1</td>
<td>1605</td>
<td>96.2</td>
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<tr>
<td>403.gcc</td>
<td>16</td>
<td>1642</td>
<td>78.4</td>
<td>1662</td>
<td>77.5</td>
<td>1655</td>
<td>77.8</td>
<td>16</td>
<td>1642</td>
<td>78.4</td>
<td>1662</td>
<td>77.5</td>
<td>1655</td>
<td>77.8</td>
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<tr>
<td>429.mcf</td>
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<td>2029</td>
<td>71.9</td>
<td>2029</td>
<td>71.9</td>
<td>2032</td>
<td>71.8</td>
<td>16</td>
<td>2027</td>
<td>72.0</td>
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<td>72.1</td>
<td>2032</td>
<td>71.8</td>
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<tr>
<td>445.gobmk</td>
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<td>2054</td>
<td>81.7</td>
<td>2060</td>
<td>81.5</td>
<td>2059</td>
<td>81.5</td>
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<td>91.2</td>
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<td>91.5</td>
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<td>91.7</td>
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<td>456.hmmer</td>
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<td>462.libquantum</td>
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<tr>
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<tr>
<td>471.omnetpp</td>
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<td>2241</td>
<td>44.6</td>
<td>2243</td>
<td>44.6</td>
<td>2241</td>
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<td>45.2</td>
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<tr>
<td>473.astar</td>
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<td>80.6</td>
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<td>483.xalancbmk</td>
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<td>98.8</td>
<td>1120</td>
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<td>1118</td>
<td>98.8</td>
<td>1118</td>
<td>98.8</td>
<td>1120</td>
<td>98.6</td>
</tr>
</tbody>
</table>

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

Operating System Notes
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run '/usr/bin/taskset' used to bind processes to CPUs

General Notes
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer, for peak, are compiled in 64-bit mode

The Express5800/140Hf and the Express5800/140Re-4 models are electronically equivalent.
The results have been measured on a Express5800/140Re-4 model.

Base Compiler Invocation

C benchmarks:
icc -static(*)

C++ benchmarks:
icpc

(*) Indicates a compiler flag that was found in a non-compiler variable.
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Base Portability Flags

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

Base Optimization Flags

C benchmarks:
-xP -ipo -O3 -no-prec-div

C++ benchmarks:
-xP -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib -lsmartheap

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -static(*)

401.bzip2: /opt/intel/cce/10.0.023/bin/icc
-L/opt/intel/cce/10.0.023/lib
-I/opt/intel/cce/10.0.023/include

445.gobmk: icc

456.hmmer: /opt/intel/cce/10.0.023/bin/icc
-L/opt/intel/cce/10.0.023/lib
-I/opt/intel/cce/10.0.023/include -static(*)

C++ benchmarks:
icpc

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Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3
-no-prec-div -ansi-alias -prefetch
401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3
-no-prec-div
403.gcc: basepeak = yes
429.mcf: -xP -ipo -O3 -no-prec-div -prefetch
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xP -O2 -ipo
-no-prec-div -ansi-alias
456.hmmer: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3
-no-prec-div -unroll2 -ansi-alias
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3
-no-prec-div -unroll4
462.libquantum: Same as 458.sjeng
464.h264ref: Same as 456.hmmer

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xP -O3 -ipo
-no-prec-div -ansi-alias -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib -lsmartheap
473.astar: Same as 471.omnetpp
483.xalancbmk: basepeak = yes
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Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/NEC-ic10-ia32-intel64-linux-flags.xml

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

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