Fujitsu Siemens Computers

PRIMERGY RX100 S5, Intel Core 2 Duo E4600, 2.40 GHz

CPU2006 license: 22
Test sponsor: Fujitsu Siemens Computers
Tested by: Fujitsu Siemens Computers

Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Core 2 Duo E4600</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>800 MHz system bus</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2400</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>2 cores, 1 chip, 2 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>2 MB I+D on chip per chip</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>8 GB (4x2 GB PC2-6400E, 2 rank. CL 6-6-6, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1x SATA, 500 GB, 7200 rpm</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>Intel C++ Compiler for Linux32 and Linux64, Version 10.1, Build 20070913</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>Yes</td>
</tr>
<tr>
<td>File System:</td>
<td>ext2</td>
</tr>
<tr>
<td>System State:</td>
<td>Multi-User Run Level 3</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>MicroQuill SmartHeap Library, Version 8.1, binutils-2.17.50.0.5-0.1.x86_64</td>
</tr>
</tbody>
</table>

SPECint\_rate2006 = 29.4
SPECint\_rate\_base2006 = 26.1

Test Date: Mar-2008
Hardware Availability: Apr-2008
Software Availability: Nov-2007
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>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>2</td>
<td>637</td>
<td>30.7</td>
<td>638</td>
<td>30.6</td>
<td>632</td>
<td>30.9</td>
<td>530</td>
<td>36.8</td>
<td>530</td>
<td>36.8</td>
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<tr>
<td>401.bzip2</td>
<td>2</td>
<td>1080</td>
<td>17.9</td>
<td>1084</td>
<td>17.8</td>
<td>1080</td>
<td>17.9</td>
<td>2</td>
<td>651</td>
<td>24.7</td>
<td>668</td>
</tr>
<tr>
<td>403.gcc</td>
<td>2</td>
<td>696</td>
<td>23.1</td>
<td>684</td>
<td>23.5</td>
<td>688</td>
<td>23.4</td>
<td>651</td>
<td>24.7</td>
<td>668</td>
<td>24.1</td>
</tr>
<tr>
<td>429.mcf</td>
<td>2</td>
<td>680</td>
<td>26.8</td>
<td>679</td>
<td>26.9</td>
<td>681</td>
<td>26.8</td>
<td>691</td>
<td>26.4</td>
<td>691</td>
<td>26.4</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>2</td>
<td>683</td>
<td>30.7</td>
<td>683</td>
<td>30.7</td>
<td>684</td>
<td>30.7</td>
<td>691</td>
<td>33.7</td>
<td>691</td>
<td>33.7</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>2</td>
<td>749</td>
<td>24.9</td>
<td>751</td>
<td>24.9</td>
<td>750</td>
<td>24.9</td>
<td>461</td>
<td>40.5</td>
<td>463</td>
<td>40.3</td>
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<tr>
<td>458.sjeng</td>
<td>2</td>
<td>871</td>
<td>27.8</td>
<td>873</td>
<td>27.7</td>
<td>874</td>
<td>27.7</td>
<td>775</td>
<td>31.2</td>
<td>773</td>
<td>31.3</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>2</td>
<td>1686</td>
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<td>1678</td>
<td>24.7</td>
<td>1676</td>
<td>24.7</td>
<td>600</td>
<td>34.5</td>
<td>604</td>
<td>34.3</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>2</td>
<td>934</td>
<td>47.4</td>
<td>932</td>
<td>47.5</td>
<td>934</td>
<td>47.4</td>
<td>898</td>
<td>49.3</td>
<td>900</td>
<td>49.2</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>2</td>
<td>662</td>
<td>18.9</td>
<td>663</td>
<td>18.9</td>
<td>661</td>
<td>18.9</td>
<td>623</td>
<td>20.1</td>
<td>623</td>
<td>20.1</td>
</tr>
<tr>
<td>473.astar</td>
<td>2</td>
<td>779</td>
<td>18.0</td>
<td>780</td>
<td>18.0</td>
<td>779</td>
<td>18.0</td>
<td>724</td>
<td>19.4</td>
<td>724</td>
<td>19.4</td>
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<tr>
<td>483.xalancbmk</td>
<td>2</td>
<td>407</td>
<td>33.9</td>
<td>408</td>
<td>33.8</td>
<td>407</td>
<td>33.9</td>
<td>407</td>
<td>33.9</td>
<td>407</td>
<td>33.9</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
OMP_NUM_THREADS set to number of cores (default)

Platform Notes

BIOS configuration:
Hardware Prefetch = Enable, Adjacent Sector Prefetch = Disable

General Notes

All binaries were built with 32-bit Intel compiler except:
401.bzip2 and 456.hmmer in peak were built with 64-bit Intel
compiler by changing the path for include and library files.

For information about Fujitsu Siemens Computers please see:
http://www.fujitsu-siemens.com

Base Compiler Invocation

C benchmarks:
  icc

C++ benchmarks:
  icpc
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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:
- -fast
- -inline-calloc
- -opt-malloc-options=3

C++ benchmarks:
- -xT
- -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

401.bzip2: /opt/intel/cce/10.1.008/bin/icc
- L/opt/intel/cce/10.1.008/lib
- I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc
- L/opt/intel/cce/10.1.008/lib
- I/opt/intel/cce/10.1.008/include

C++ benchmarks:

icpc

Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32
401.bzip2: -DSPEC\_CPU\_LP64
456.hmmer: -DSPEC\_CPU\_LP64
462.libquantum: -DSPEC\_CPU\_LINUX

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Peak Portability Flags (Continued)

483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias
-prefetch
401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
403.gcc: -fast -inline-calloc -opt-malloc-options=3
429.mcf: -fast -prefetch
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo
-no-prec-div -ansi-alias
456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch
-opt-streaming-stores always -vec-guard-write
-opt-malloc-options=3 -parallel -par-runtime-control
464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo
-no-prec-div -ansi-alias -opt-ra-region-strategy=block
-Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap
473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine
-Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

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Peak Other Flags (Continued)
403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090713.01.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090713.01.xml

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

Tested with SPEC CPU2006 v1.0.
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