Sun Microsystems
Sun SPARC Enterprise M9000

SPEC_int_rate2006 = 650
SPEC_int_rate_base2006 = 553

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Fujitsu Limited
Test date: Apr-2007
Hardware Availability: Apr-2007
Software Availability: May-2007

400.perlbench
401.bzip2
403.gcc
429.mcf
445.gobmk
456.hmmer
458.sjeng
462.libquantum
464.h264ref
471.omnetpp
473.astar
483.xalancbmk

--- Hardware ---
CPU Name: SPARC64 VI
CPU Characteristics:
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 64 cores, 32 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable: 1 to 8 CMUs; each CMU contains 2 or 4 chips
Primary Cache: 128 KB I + 128 KB D on chip per core
Secondary Cache: 6 MB I+D on chip per core
L3 Cache:
Other Cache:
Memory: 256 GB (256 x 1 GB)
Disk Subsystem: 1095 GB RAID 0 using 15 x 73GB
10,000 RPM Fujitsu ETERNUS4000 Model 80
Other Hardware: None

--- Software ---
Operating System: Solaris 10 11/06
Compiler: Sun Studio 12 (Early Access)
Auto Parallel: No
File System: ufs
System State: Default
Base Pointers: 32-bit
Peak Pointers: 32-bit
Other Software: None
# SPEC CINT2006 Result

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## Results Table

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<th>Seconds</th>
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</tbody>
</table>

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

## Operating System Notes

Processes were bound to cores using "submit" and "pbind".

These shell commands request use of local 4MB pages:
- MPSSHAP=4MB  
- MPSSSTACK=4MB  
- MADV=access_lwp  
- LD_PRELOAD=mpss.so.1:madv.so.1

'access_lwp' means that the next lightweight process to touch the specified address range will access it the most heavily.

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

System Tunables:
- (/etc/system parameters)
  
  maxphys=4194304  
  Defines the maximum size of I/O requests, in bytes.  
  maxpgid=1024  
  Defines the maximum number of page I/O requests that can be queued by the paging system.  
  tune_t_fsflushr=30  
  Controls how many seconds elapse between runs of the page flush daemon, fsflush.  
  autoup=300  
  Causes pages older than the listed number of seconds to be written by fsflush.

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Operating System Notes (Continued)

bufhwm=3000
Memory byte limit for caching I/O buffers
segmap_percent=1
Set maximum percent memory for file system cache

Platform Notes

"CMU" = CPU/Memory Unit; each holds 2 or 4 CPU chips.
Memory is 8-way interleaved by filling all slots with the same capacity DIMMs.

This result is measured on a Fujitsu SPARC Enterprise M9000 Server. Note that the Fujitsu SPARC Enterprise M9000 and Sun SPARC Enterprise M9000 are electrically equivalent.

Base Compiler Invocation

C benchmarks:
/opt/SUNWspro12_EA070303/bin/cc

C++ benchmarks:
/opt/SUNWspro12_EA070303/bin/CC

Base Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

Base Optimization Flags

C benchmarks:
-fast -xipo=2 -xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparc.fma=fused -Wc,-fma=fused -xprefetch_level=2

C++ benchmarks:
-library=stlport4 -fast -xipo=2 -xtarget=sparc64vi
-xcache=128/64/2:6144/256/12 -xarch=sparc.fma=fused
-Qoption cg -fma=fused -xprefetch_level=2
Peak Compiler Invocation

C benchmarks:

/opt/SUNWspro12_EA070303/bin/cc

C++ benchmarks:

/opt/SUNWspro12_EA070303/bin/CC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

Peak Optimization Flags

C benchmarks:

400.perlbench: -xprofile=collect:/feedback(pass 1)
-xprofile=use:/feedback(pass 2) -fast -xipo=2
-xtarget=sparcv64 -xcache=128/64/2:6144/256/12
-xarch=sparc64fma -fma=fused -Wc,-fma=fused
-xprefetch_level=2 -xalias_level=std -xrestrict -lfast

401.bzip2: -xprofile=collect:/feedback(pass 1)
-xprofile=use:/feedback(pass 2) -fast -xipo=2
-xtarget=sparcv64 -xcache=128/64/2:6144/256/12
-xarch=sparc64fma -fma=fused -Wc,-fma=fused
-xalias_level=strong

403.gcc: -xprofile=collect:/feedback(pass 1)
-xprofile=use:/feedback(pass 2) -fast -xipo=2
-xtarget=sparcv64 -xcache=128/64/2:6144/256/12
-xarch=sparc64fma -fma=fused -Wc,-fma=fused
-xalias_level=std

429.mcf: basepeak = yes

445.gobmk: -xprofile=collect:/feedback(pass 1)
-xprofile=use:/feedback(pass 2) -fast -xipo=2
-xtarget=sparcv64 -xcache=128/64/2:6144/256/12
-xarch=sparc64fma -fma=fused -Wc,-fma=fused

456.hmmer: Same as 403.gcc

458.sjeng: Same as 445.gobmk

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: Same as 403.gcc

C++ benchmarks:

471.omnetpp: -library=stlport4 -xprofile=collect:/feedback(pass 1)
-xfp=use:/feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcmaf -fma=fused -Qoption cg -fma=fused

473.astar: -library=stlport4 -xprofile=collect:/feedback(pass 1)
-xfp=use:/feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcmaf -fma=fused -Qoption cg -fma=fused
-xalias_level=compatible -lfast

483.xalancbmk: -library=stlport4 -xprofile=collect:/feedback(pass 1)
-xfp=use:/feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcmaf -fma=fused -Qoption cg -fma=fused

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.02.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.02.xml

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

Tested with SPEC CPU2006 v1.0.