



SPEC® CINT2006 Result

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Fujitsu Limited

SPECint®_rate2006 = 617

Fujitsu SPARC Enterprise M9000

SPECint_rate_base2006 = 523

CPU2006 license: 19

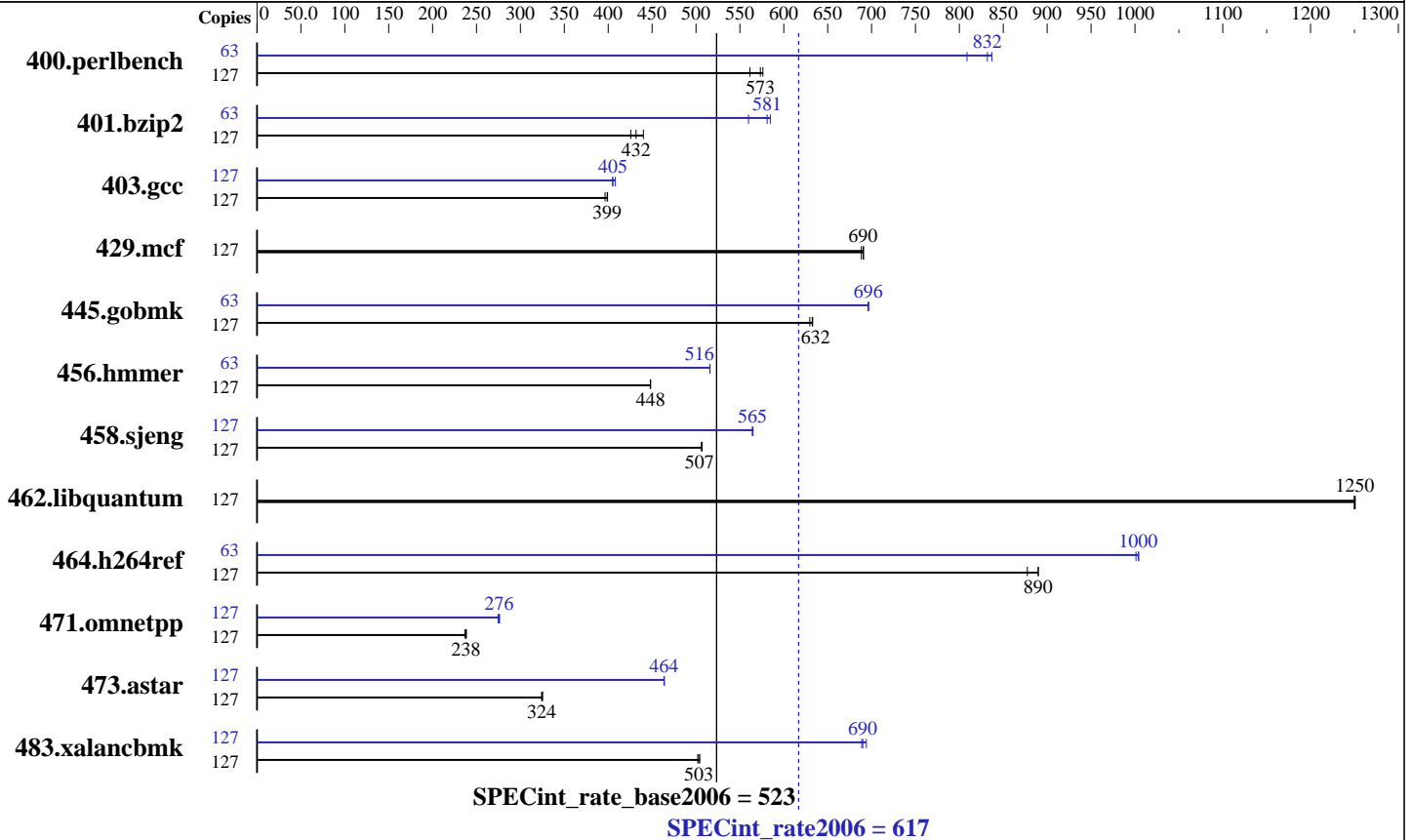
Test sponsor: Fujitsu Limited

Tested by: Fujitsu Limited

Test date: Apr-2007

Hardware Availability: Apr-2007

Software Availability: May-2007



Hardware

CPU Name: SPARC64 VI
 CPU Characteristics:
 CPU MHz: 2280
 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: 5 MB I+D on chip per chip
 L3 Cache: None
 Other Cache: None
 Memory: 256 GB (256 x 1 GB)
 Disk Subsystem: 1095 GB RAID 0 using 15 x 73 GB, 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



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	127	2210	561	<u>2164</u>	<u>573</u>	2153	576	63	761	809	735	837	<u>740</u>	<u>832</u>
401.bzip2	127	2785	440	2879	426	<u>2839</u>	<u>432</u>	63	1086	560	1040	585	<u>1046</u>	<u>581</u>
403.gcc	127	2579	396	2561	399	<u>2563</u>	<u>399</u>	127	2505	408	<u>2522</u>	<u>405</u>	2525	405
429.mcf	127	1683	688	1676	691	<u>1677</u>	<u>690</u>	127	1683	688	1676	691	<u>1677</u>	<u>690</u>
445.gobmk	127	2116	630	<u>2107</u>	<u>632</u>	2105	633	63	949	697	949	696	<u>949</u>	<u>696</u>
456.hammer	127	<u>2643</u>	<u>448</u>	2645	448	2643	448	63	1139	516	<u>1139</u>	<u>516</u>	1140	516
458.sjeng	127	3036	506	<u>3033</u>	<u>507</u>	3033	507	127	<u>2722</u>	<u>565</u>	2720	565	2723	564
462.libquantum	127	2106	1250	2104	1250	<u>2104</u>	<u>1250</u>	127	2106	1250	2104	1250	<u>2104</u>	<u>1250</u>
464.h264ref	127	<u>3159</u>	<u>890</u>	3158	890	3203	877	63	1393	1000	1388	1000	<u>1389</u>	<u>1000</u>
471.omnetpp	127	3353	237	<u>3335</u>	<u>238</u>	3329	238	127	<u>2877</u>	<u>276</u>	2890	275	2873	276
473.astar	127	2749	324	2740	325	<u>2749</u>	<u>324</u>	127	1922	464	1923	464	<u>1923</u>	<u>464</u>
483.xalancbmk	127	1746	502	<u>1742</u>	<u>503</u>	1737	504	127	<u>1270</u>	<u>690</u>	1263	694	1272	689

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".

Shell Environment:

```
Stack size set to unlimited via "ulimit -s unlimited"
MPSSHEAP=4MB
MPSSSTACK=4MB
MADV=access_lwp
LD_PRELOAD=mpss.so.1:madv.so.1
```

System Tunables:

```
(/etc/system parameters)
maxphys=4194304
  Defines the maximum size of I/O requests, in bytes.
maxpgio=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.
bufhwm=3000
  Memory byte limit for caching I/O buffers
segmap_percent=1
  Set maximum percent memory for file system cache
```



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Platform Notes

"CMU" = CPU/Memory Unit; each holds 2 or 4 CPU chips.

Memory was 8-way interleaved by filling all slots with the same capacity DIMMs.

This result was 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/SUNWspr012_EA070303/bin/cc

C++ benchmarks:

/opt/SUNWspr012_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=sparcfmaf -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=sparcfmaf -fma=fused
-Qoption cg -fma=fused -xprefetch_level=2

Peak Compiler Invocation

C benchmarks:

/opt/SUNWspr012_EA070303/bin/cc

C++ benchmarks:

/opt/SUNWspr012_EA070303/bin/CC



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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=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused
-xprefetch_level=2 -xalias_level=std -xrestrict -lfast

401.bzp2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused
-xalias_level=strong

403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -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=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused

456.hmmer: Same as 403.gcc

458.sjeng: Same as 445.gobmk

462.libquantum: basepeak = yes

464.h264ref: Same as 403.gcc

C++ benchmarks:

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

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Peak Optimization Flags (Continued)

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

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

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

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