

SUMMARY: Floating point problem

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I almost posted a question about this, but one colleague suggested a test, the other colleague presented a program to do it, and I was able to use it in the needed way...so here's the summary....

We have two Java-based integration products, eGate and ICAN, running on Solaris 8 on Fireservers. The application was working on one of our servers, but on the other server, it gave us a problem with floating point math. Money gets converted from floating point to a double precision number and then to a string (we didn't write this code :-).

This worked on our "production server".
On our "test" server, it worked, then it stopped working following maintenance, then a restart got it working again.
Six months later, it stopped working, again following maintenance, and could not be resolved.

The issue was money (2 digit decimal) was shown with a repeating decimal.....eg, 7.59 was 7.5899999999.....not 100% of the time, but very often.

We spoke with "See Beyond" (actually Sun, now :-), and with Sun, and ourselves, System Patches, application patches, revision levels, everything checked, no result.

Then someone said, maybe it's hardware? No errors in the logs....
Can we bind it to a CPU? Interesting question.
The Java test program would run once and return results, we had a script to do that forever. We changed the program to loop internally, so that it retained it's Process ID.....

We then used top to monitor CPU#, and pbind to move that process to another CPU. One at a time, through the 4 new, fast CPU's, the bug was gone, then the first of the old CPU's, bingo, 100% failure.

psradm allowed us to shut off the processor, and the problem went away. SUN FE came and replaced the motherboard and cpu 10 (hot swap! nice!), 0 downtime!

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The problem is gone. About 20 minutes to resolve.
Just took a week to come up with the right question,
could this be an undetected hardware issue?

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