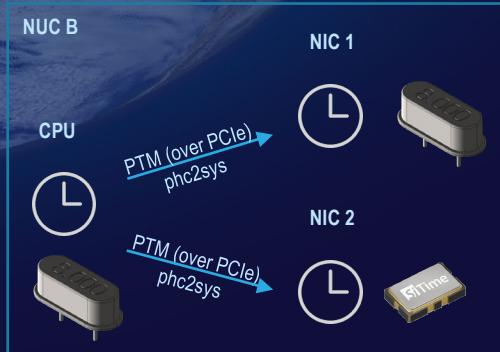
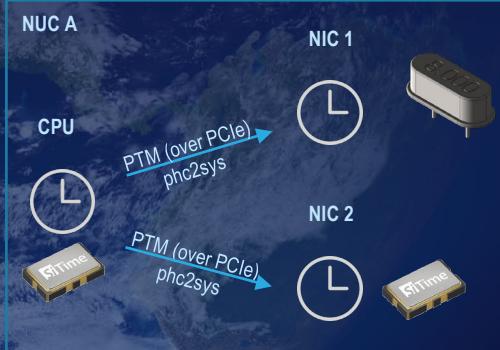
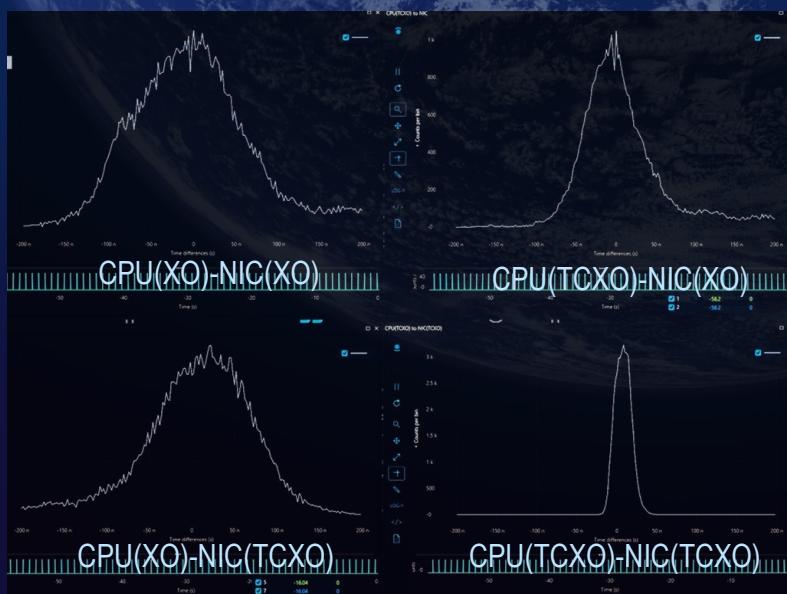


# TCXO for NICs and

CPUS

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## Why?

With the advancement of technology, the price difference between TCXOs and XOs is becoming negligible. Now the question is, would the usage of a TCXO improve the overall synchronization performance of a system?

Using precision time measurement of a modified NUC11, we benchmarked the CPU to NIC synchronization for the possible permutations of using a XO or TCXO for the CPU and the NIC.

Using the GPIO signal from the CPU and the 1-PPS signal from the NIC we were able to benchmark the synchronization.

## Results

Results show improvement in synchronization performance in the system with a CPU or NIC driven by a TCXO. A significant improvement is observed when driving both CPU and NIC using TCXOs.

## Conclusion

Depending on the application, if the clock synchronization performance is important, the price difference for upgrading from an XO to a TCXO might be justified. One average an XO (25ppm) is about \$0.2 while a TCXO ranges from \$3 to \$20 on volume, depending on its performance.

## ACK

Author would like to acknowledge SiTime for providing the TCXOs for this study.



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