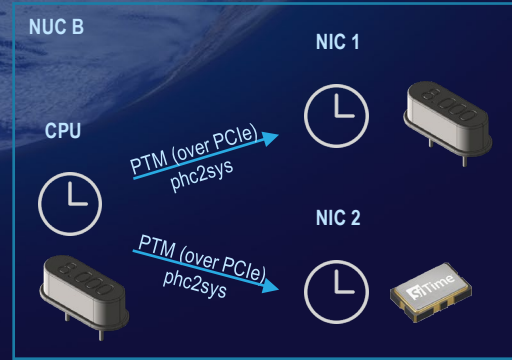
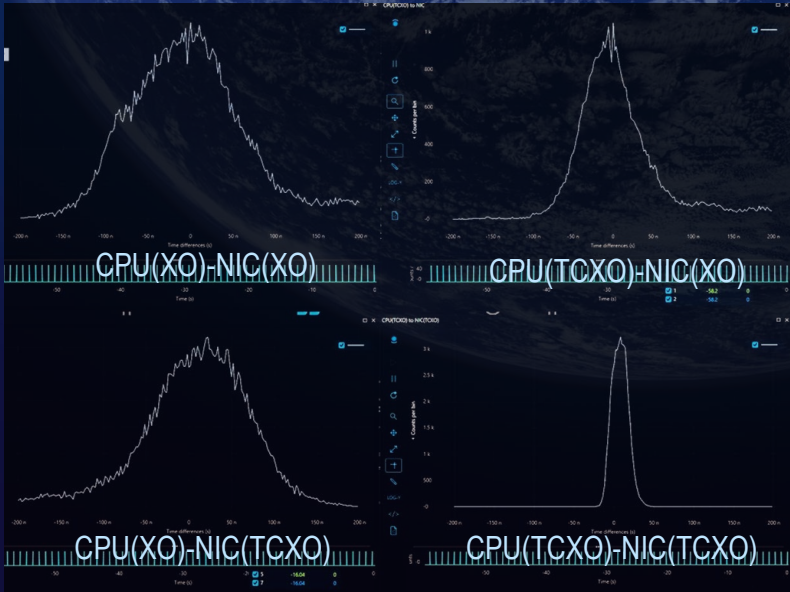


TCXO for NICs and CPUs

Ahmad Byagowi

OCP TAP Project Lead
Meta Research Scientist



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 TGPIO 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.



For more information please check:
www.ocptap.com
www.timingcard.com