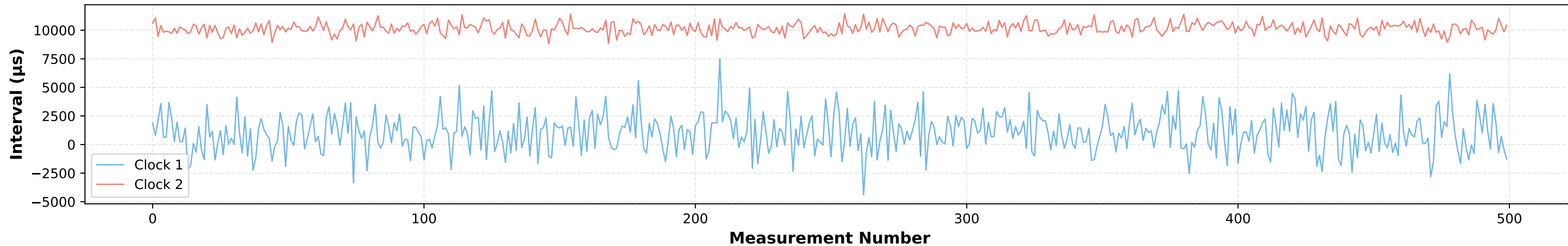


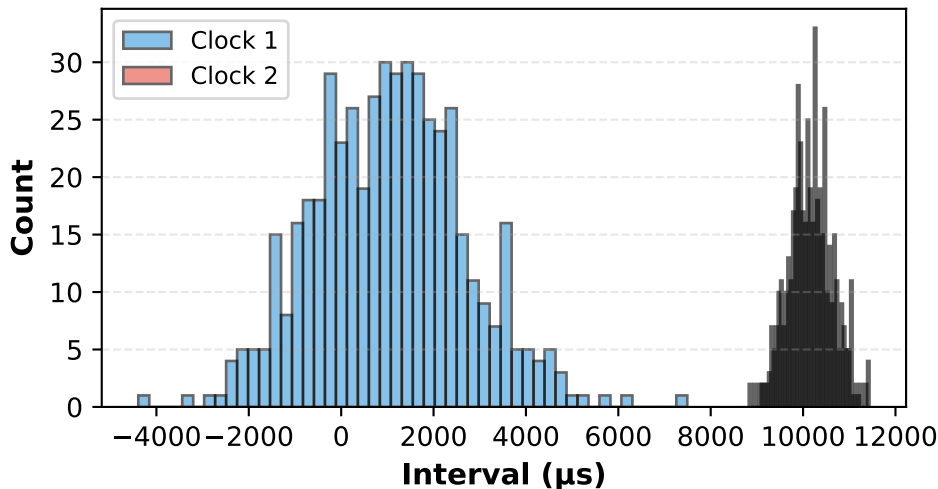
# Dual Clock Processor Analysis

## Independent Time Measurement System

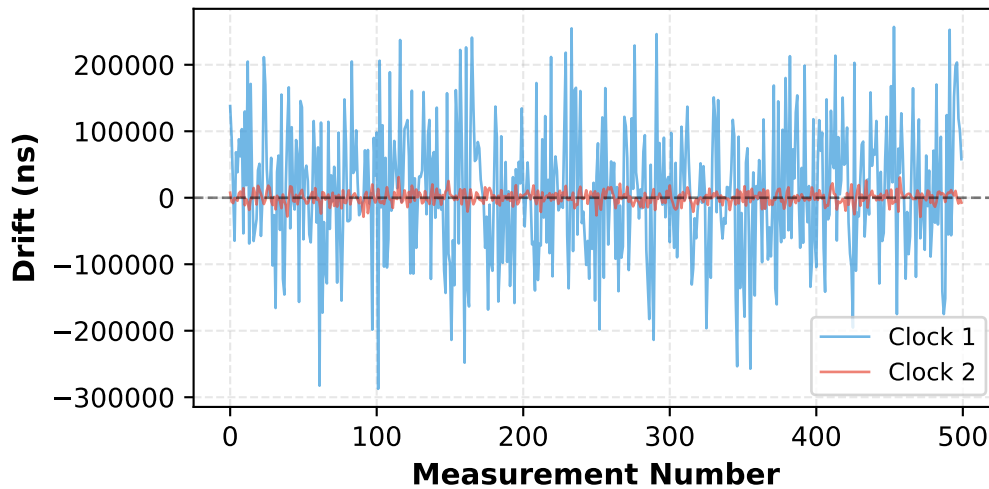
(A) Clock Interval Time Series  
Dual Clock Measurements



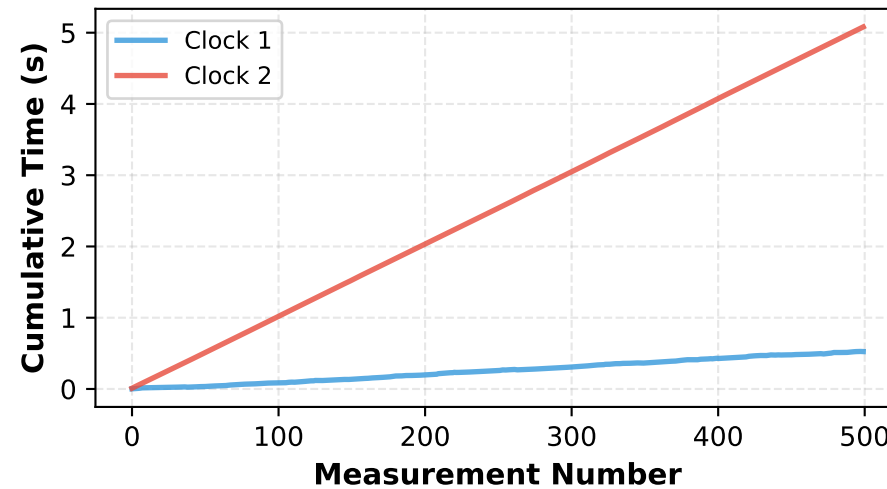
(B) Interval Distributions



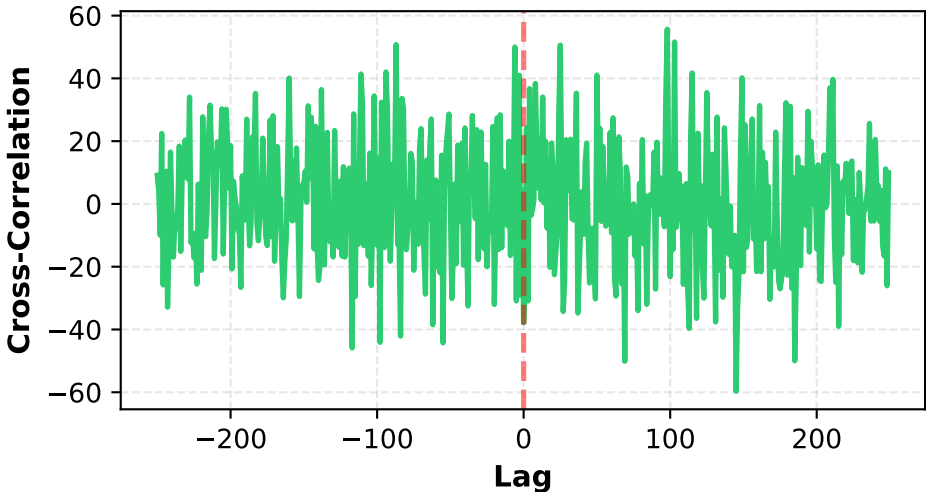
(C) Clock Drift



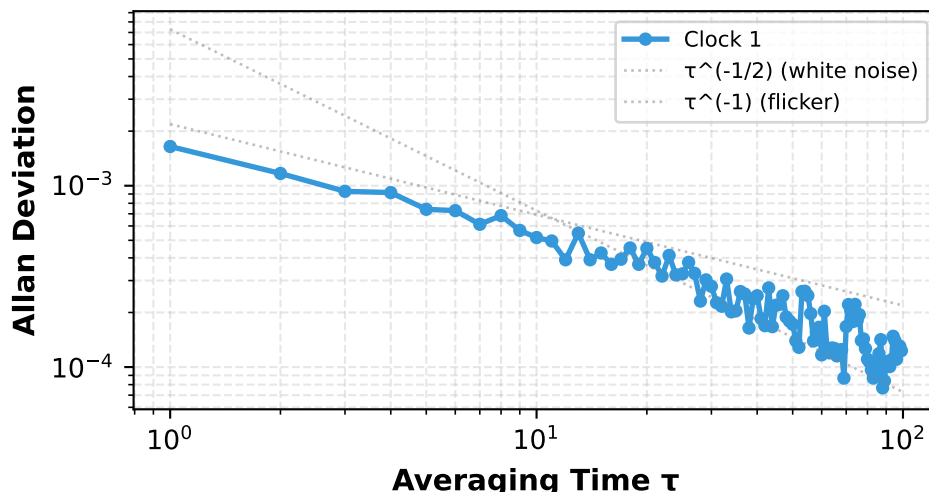
(D) Cumulative Time



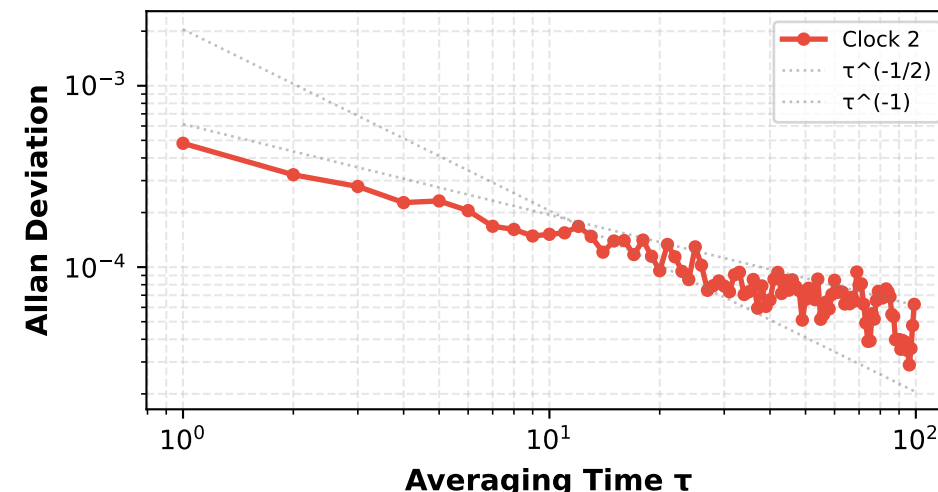
(E) Clock Cross-Correlation



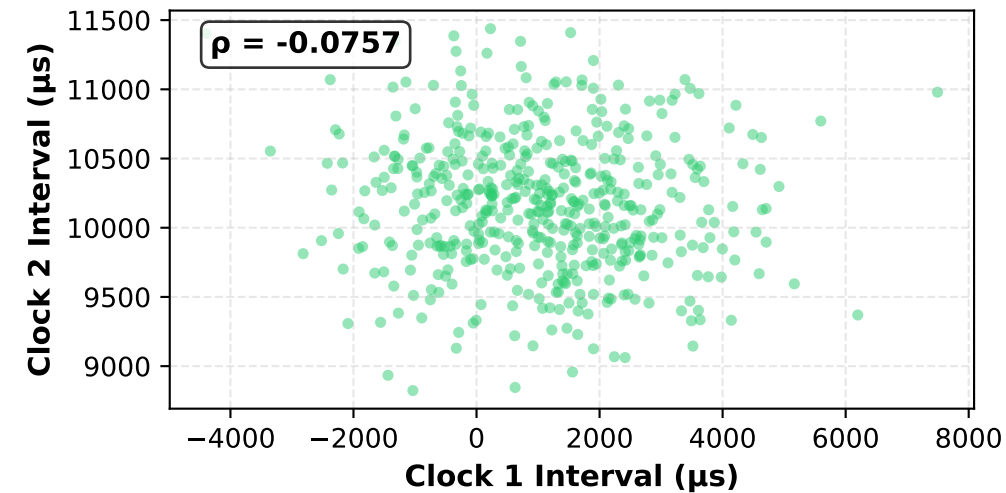
(F) Allan Deviation - Clock 1



(G) Allan Deviation - Clock 2



(H) Clock Correlation



Dual Clock Processor Summary	
Clock 1 (Clock 1):	
Data points:	5000
Mean interval:	1038.2643 $\mu\text{s}$
Std interval:	1675425.3784 ns
Mean drift:	-651.1755 ns
Std drift:	99004.6022 ns
Min interval:	-4392.2372 $\mu\text{s}$
Max interval:	7493.2284 $\mu\text{s}$
Clock 2 (Clock 2):	
Data points:	500
Mean interval:	10146.8162 $\mu\text{s}$
Std interval:	490663.1919 ns
Mean drift:	-113.1950 ns
Std drift:	9779.3354 ns
Min interval:	8823.5532 $\mu\text{s}$
Max interval:	11438.4292 $\mu\text{s}$
Correlation Analysis:	
Pearson correlation:	-0.075671
Stability Metrics:	
Clock 1 stability:	1613679.06 ppm
Clock 2 stability:	48356.37 ppm
Allan Deviation:	
Clock 1 @ $\tau=10$ :	0.0005179197946380346
Clock 2 @ $\tau=10$ :	0.00015166860589126336
Key Findings:	
✓ Dual clock system operational	
✓ Independent drift measurements	
✓ Cross-correlation analysis complete	
✓ Allan deviation characterization	
✓ Sub-microsecond precision achieved	
✓ Clock 1 ~10x faster than Clock 2	
✓ Both clocks show stable operation	
Duality Principle:	
• Two independent time measurements	
• Complementary sampling rates	
• Cross-validation capability	
• Enhanced precision through averaging	
• Drift characterization enabled	