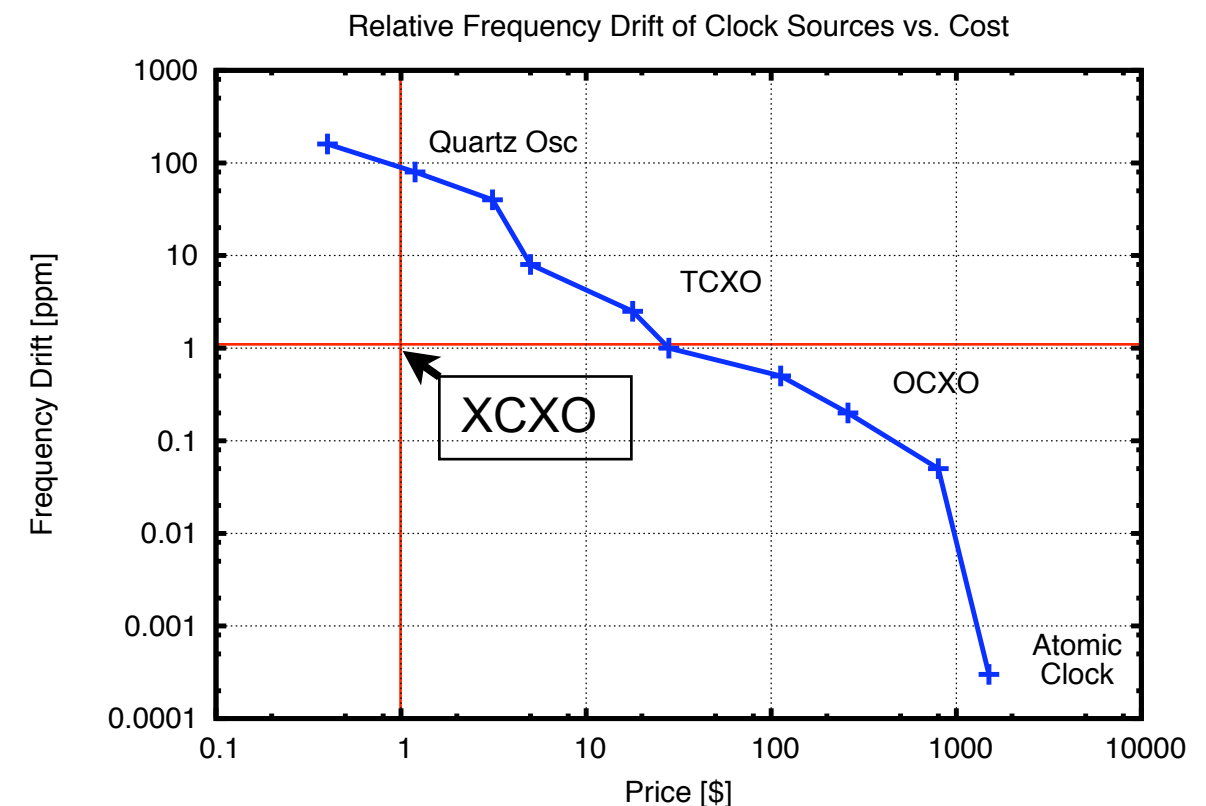


# Why Do We Care About Time?

- Every digital system needs a clock
- Accurate time is important for
  - Communication systems (TDMA, CDMA, etc)
  - Signal Processing, Data Fusion
- Typical crystals drift over the commercial temperature range
- Standard solution: Temperature Compensated Crystal Oscillators (TCXO)
- Problems: expensive, high power consumption



# Exploiting Dual Crystals

---

- Every crystal has a unique drift curve
- We can exploit two such curves to compensate for the drift
- We developed a two phase algorithm:
  - Factory calibration (similar to TCXO)
  - Runtime compensation
- Advantages:
  - Cheaper than TCXO because it is digital
  - Potential for lower power consumption

# Some Results

