Ethernet Timestamping Precision/Accuracy

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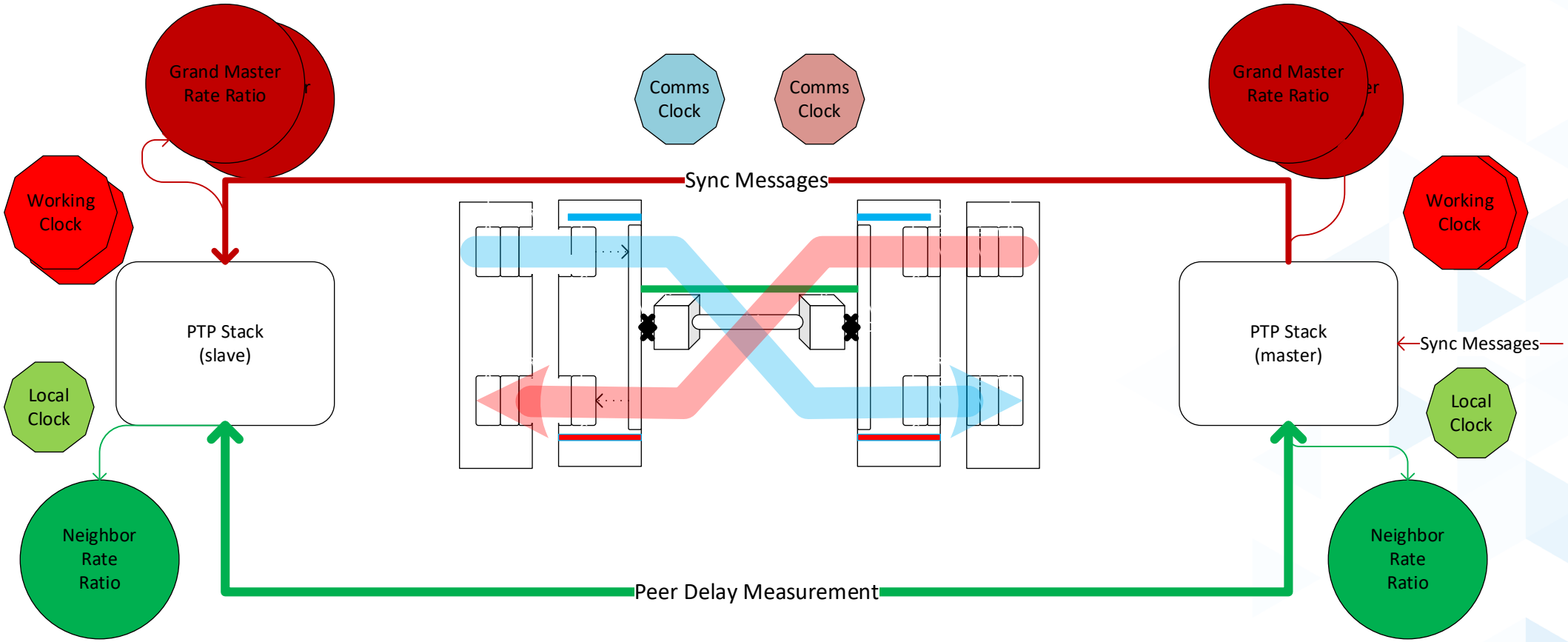
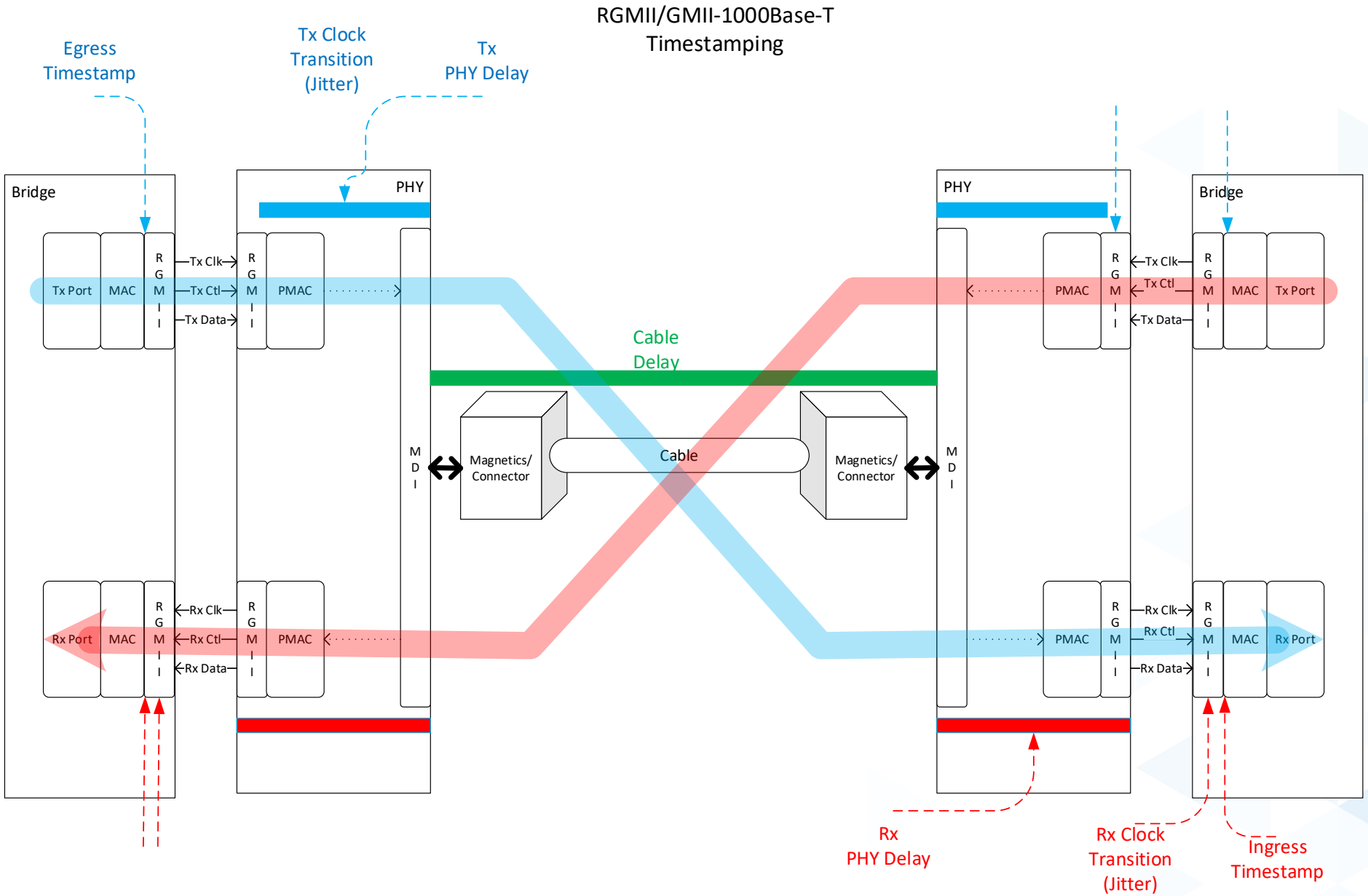
Analog Devices

AHEAD OF WHAT'S POSSIBLE™

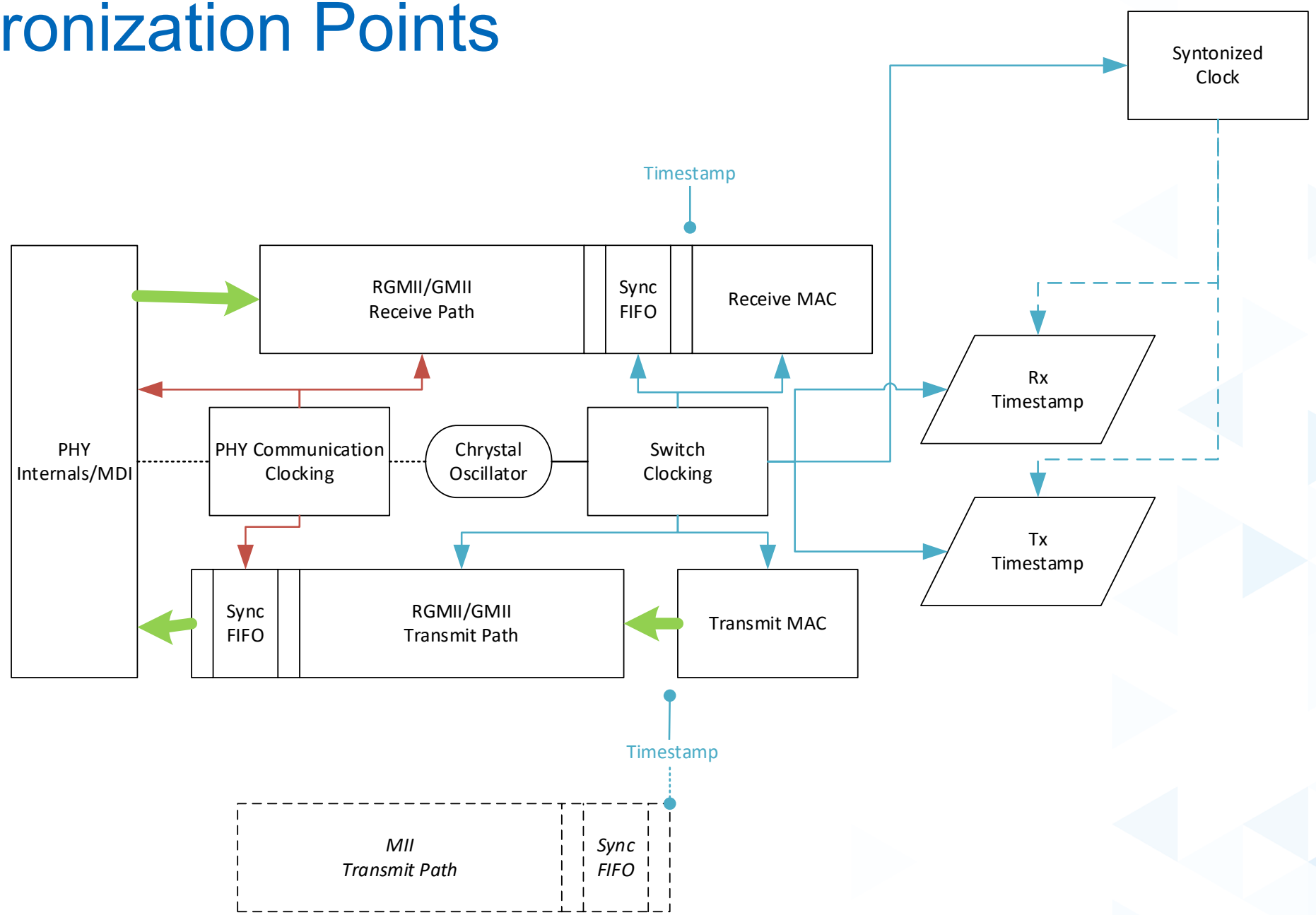
Clocks/Relationships



Timestamp Points/Signals



Synchronization Points



Summary

- Typical implementation minimizes magnitude and number of clock frequencies
- Typical MAC/port clock frequency in the neighborhood of 125 Mhz (Gbit support)
- MII is the only standard interface that provides high frequency information of transmit timing
  - MII doesn’t support Gbit operation and is unpopular due to high pin count
- To support timestamp precision greater than 8 nsec:
  - Need additional signaling from the PHY to bridge on transmit path
    - Non-standard. Existing implementations differ (and most don’t support preemption).
  - Need higher frequency logic or custom capture unit to sample timing signals (both tx and rx)
  - Need to integrate information from high precision signal logic into timestamp generation units