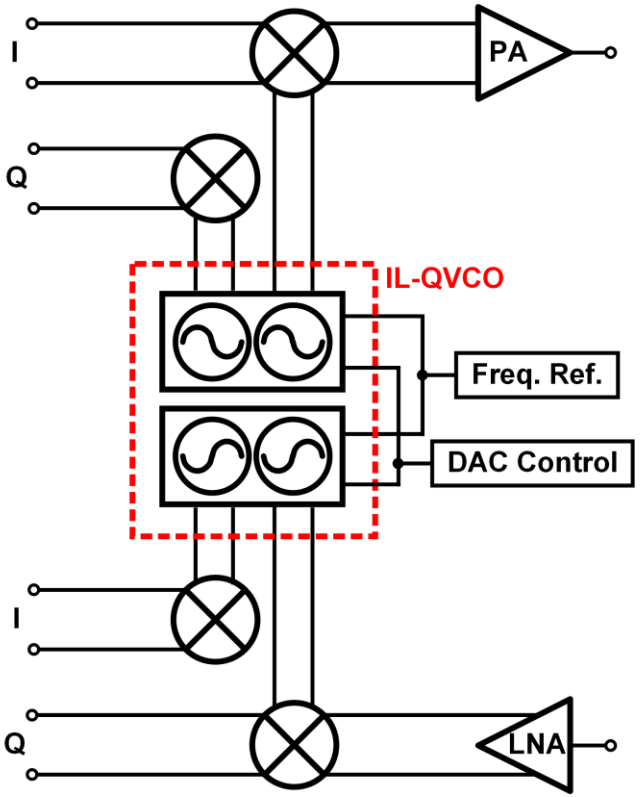
Karlsruher Institut für Technologie

Master Thesis

Design and Analysis of a *K*a-band Injection-locked QVCO for IQ phase Calibration

In modern RF direct-conversion IQ transceiver design, any amplitude and phase imbalance at I- /Q- path result in degradation in error vector magnitude (EVM). A robust and tunable LO quadrature generator is desirable since there are process, voltage and temperature (PVT) variations at the IC fabrication.

A tunable LO quadrature generator can be realized using the injection-locked quadrature voltage-controlled oscillator (IL-QVCO). The aim of this thesis is to develop a *K*a-band IL-QVCO using 0.13-µm SiGe BiCMOS process. Theoretical analysis would be focused on the mechanism of injection-locking.



Tasks:

- Circuit desgin and simulation with Cadence SpectreRF or Keysight ADS
- Parasitics extraction using QRC and EM simulation using Momentum
- Layout in Cadence Virtuoso (DRC, LVS check)

Ansprechpartner

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