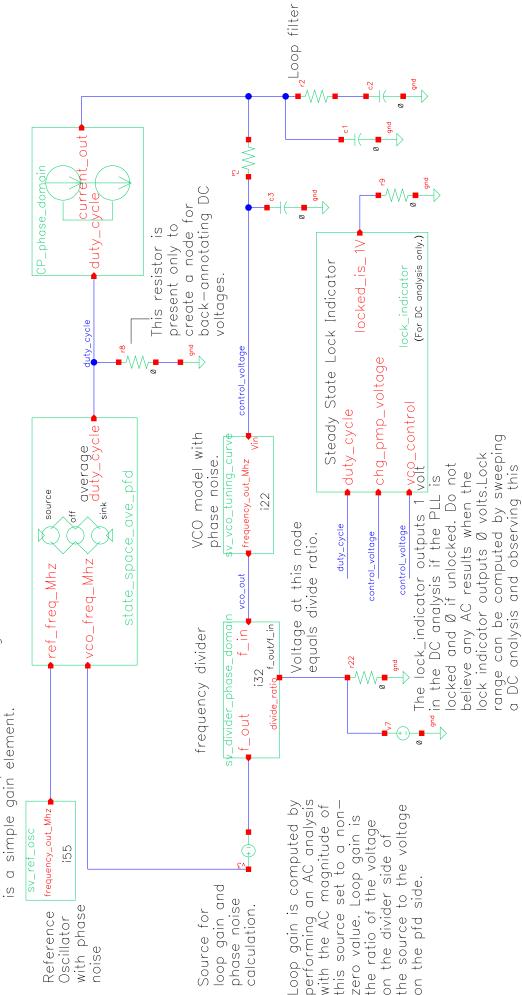
The phase domain model suppresses the reference and vco oscillatory voltages and models only phase dynamics. However, reference and vco phases are internal to the PFD model. Duty cycle is the only output.

Duty cycle drives the charge pump such that the average current between the charge pump and loop filter is a fixed current modulated by duty cycle. The charge pump is a current generator with a finite output impedance. The charge pump voltage clamps at the specified supply rails. The vco is modeled by its tuning curve. The vco model in this example characterizes the tuning curve with a polynomial. The parameters are the polynomial coefficients. An alternate model accepts a tabular description of the tuning curve. The divider

## Phase domain PLL model

Note: I made the following parameters Artist variables because the lock indicator shares them with the other blocks:

max chg pmp voltage min chg pmp voltage max vco input voltage min vco input voltage



node voltage.