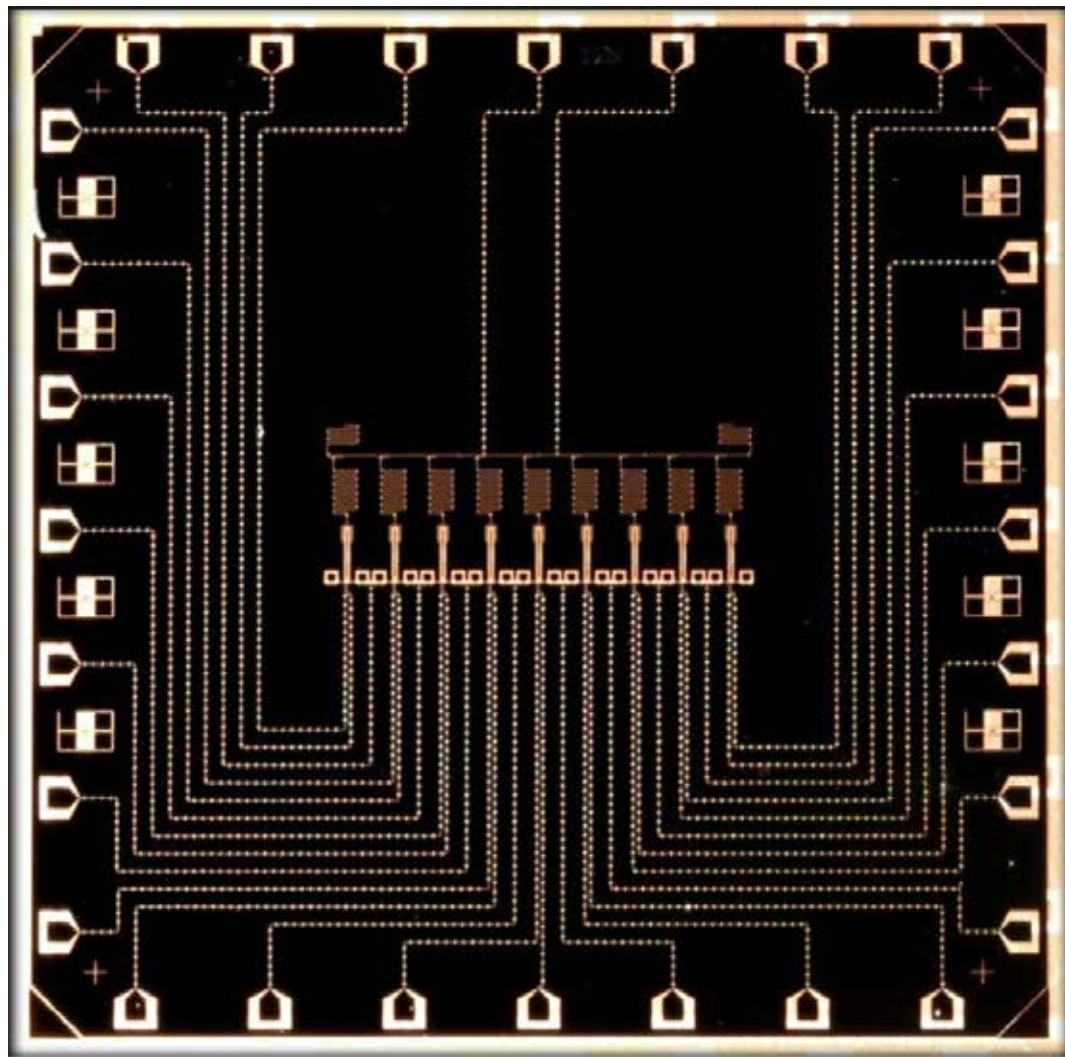
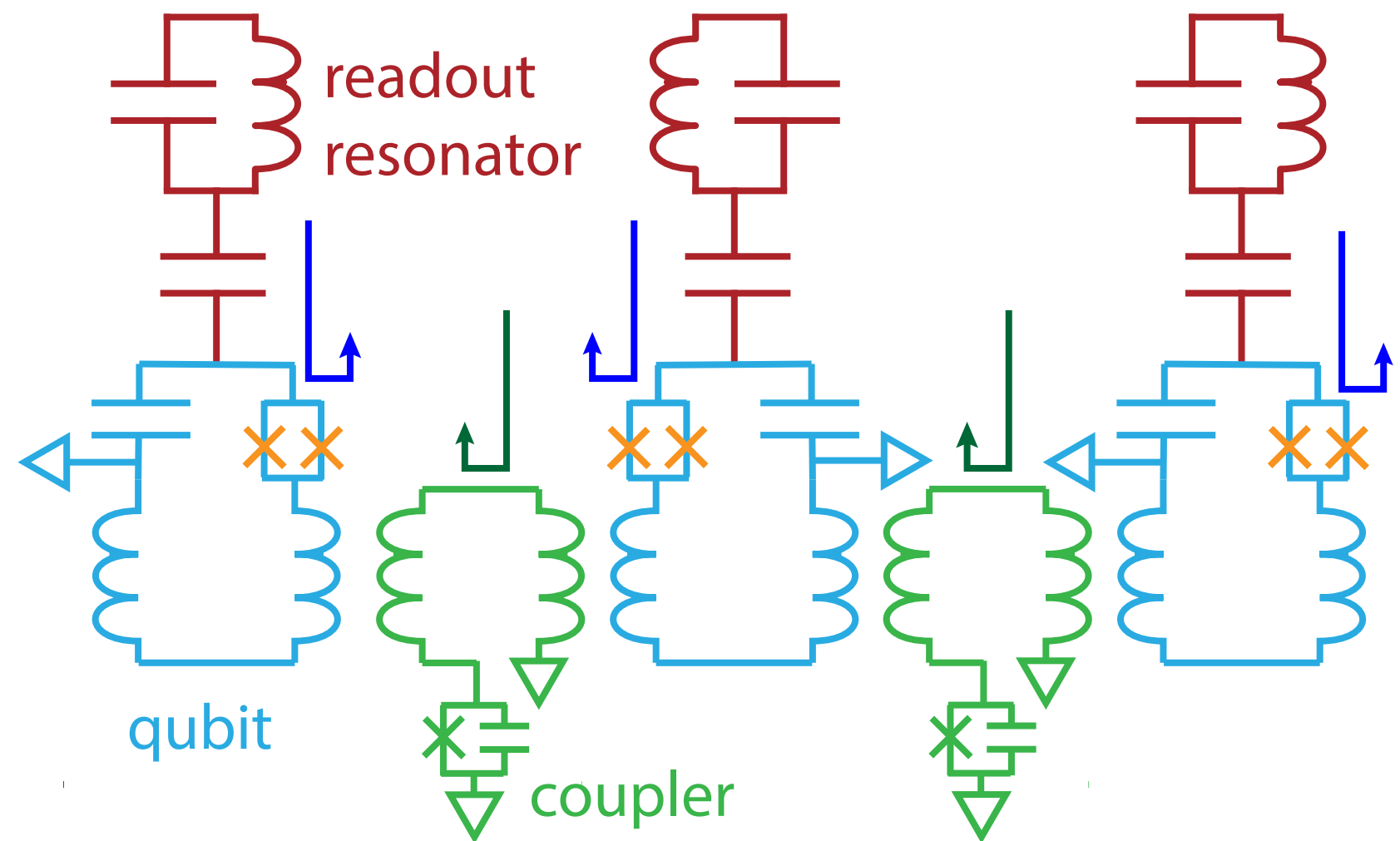


a)

11.5 mm



b)



$$H_{BH} = \underbrace{\sum_i^{N_{coupler}} J_{i,i+1} \left(a_i^\dagger a_{i+1} + a_i a_{i+1}^\dagger \right)}_{\text{coupling (hopping)}} + \underbrace{\sum_i^{N_{qubit}} h_i n_i}_{\text{frequency detuning}} + \underbrace{\frac{U}{2} \sum_i^{N_{qubit}} n_i (n_i - 1)}_{\text{qubit nonlinearity}}$$