Transfer Function

\[ H(z) = \frac{z^{-2}}{(1 - p_0 z^{-1})(1 - p_1 z^{-1})} = \frac{1}{(z-p_0)(z-p_1)} \]

Cascaded Implementation

\[ H_0(z) = \frac{1}{z-p_0}, \quad H_1(z) = \frac{1}{z-p_1} \]

\[ H(z) = H_0(z)H_1(z) \]

Parallel Implementation

- Use partial fractions decomposition

\[ H(z) = \frac{A}{z-p_0} + \frac{B}{z-p_1} \]

\[ A = \frac{1}{p_0-p_1}, \quad B = \frac{1}{p_1-p_0} \]