

Discrete Time Model

$$\mathbf{X}_0 = \left(I - \prod_{i=k}^1 e^{A_i t_i} \right)^{-1} \sum_{i=1}^k \left(\prod_{j=k}^{i+1} e^{A_j t_j} \right) A_i^{-1} (e^{A_i t_i} - I) \mathbf{B}_i \mathbf{u}_i$$

$$\mathbf{X}(T_S) = \left[\prod_{i=k}^1 e^{A_i t_i} \right] \mathbf{X}_0 + \left[\sum_{i=1}^k \left(\prod_{j=k}^{i+1} e^{A_j t_j} \right) A_i^{-1} (e^{A_i t_i} - I) \mathbf{B}_i \right] \mathbf{u}_i$$

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Sample Timing



System Block Diagram

Control Timing

