

$$A \cdot B = \begin{pmatrix} \left( a_1^1 b_1^1 + a_1^2 b_2^1 \right) & \left( a_1^1 b_1^2 + a_1^2 b_2^2 \right) \\ \left( a_2^1 b_1^1 + a_2^2 b_2^1 \right) & \left( a_2^1 b_1^2 + a_2^2 b_2^2 \right) \end{pmatrix}.$$