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$$\{(f(m,n))\},$$

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2^k , $-$ k-

$$\mathrm{X} = \{x(m, n)\} \qquad N \times N \quad \left(N = 2^k\right)$$

$$[\mathrm{X}(m, n)]:$$

$$[\mathrm{X}(m, n)] = \begin{bmatrix} x(0,0) & x(0,1) & ... & x(0, N-1) \\ x(1,0) & x(1,1) & ... & x(1, N-1) \\ \hline \multicolumn{4}{c}{..} \\ x(N-1,0) & x(N-1,1) & ... & x(N-1, N-1) \end{bmatrix}$$

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.   , c_i

(   ) d_j ,

w_{ij} (   ). $c_i = \sum_j d_j c_{ij}$, $i, j = 1, 2, \ldots n$.

, $n = 4$

$$\begin{pmatrix} c_1 \\ c_2 \\ c_3 \\ c_4 \end{pmatrix} = \begin{pmatrix} w_{11} & w_{12} & w_{13} & w_{14} \\ w_{21} & w_{22} & w_{23} & w_{24} \\ w_{31} & w_{32} & w_{33} & w_{34} \\ w_{41} & w_{42} & w_{43} & w_{44} \end{pmatrix} \begin{pmatrix} d_1 \\ d_2 \\ d_3 \\ d_4 \end{pmatrix},$$

$$C = W \cdot D.$$

w_{ij} .   ,

c_1 ,   .

$c_i = \sum_j d_j c_{ij}$, c_i ,

w_{ij} d_j .   ,

, w_{ij} d_j

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d_j .   , c_i , w_{ij}

d_j .   , w_{ij}

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