Divide-and-conquer algorithm

IDEA:

$n{\times}n$ matrix = $2{\times}2$ matrix of $(n/2){\times}(n/2)$ submatrices:

$$\begin{bmatrix} r & s \\ t & u \end{bmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \cdot \begin{bmatrix} e & f \\ g & h \end{bmatrix}$$

$$C \quad = \quad A \quad \cdot \quad B$$

$$
\left.\begin{array}{l}
r = ae + bg \\
s = af + bh \\
t = ce + dh \\
u = cf + dg
\end{array}\right\}
$$

recursive

8 mults of $(n/2){\times}(n/2)$ submatrices
4 adds of $(n/2){\times}(n/2)$ submatrices