

MATRIX-MULTIPLY-RECURSIVE(A, B, C, n)

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1  if  $n == 1$ 
2    // Base case.
3       $c_{11} = c_{11} + a_{11} \cdot b_{11}$ 
4      return
5    // Divide.
6    partition  $A, B$ , and  $C$  into  $n/2 \times n/2$  submatrices
       $A_{11}, A_{12}, A_{21}, A_{22}; B_{11}, B_{12}, B_{21}, B_{22};$ 
      and  $C_{11}, C_{12}, C_{21}, C_{22};$  respectively
7    // Conquer.
8    MATRIX-MULTIPLY-RECURSIVE( $A_{11}, B_{11}, C_{11}, n/2$ )
9    MATRIX-MULTIPLY-RECURSIVE( $A_{11}, B_{12}, C_{12}, n/2$ )
10   MATRIX-MULTIPLY-RECURSIVE( $A_{21}, B_{11}, C_{21}, n/2$ )
11   MATRIX-MULTIPLY-RECURSIVE( $A_{21}, B_{12}, C_{22}, n/2$ )
12   MATRIX-MULTIPLY-RECURSIVE( $A_{12}, B_{21}, C_{11}, n/2$ )
13   MATRIX-MULTIPLY-RECURSIVE( $A_{12}, B_{22}, C_{12}, n/2$ )
14   MATRIX-MULTIPLY-RECURSIVE( $A_{22}, B_{21}, C_{21}, n/2$ )
15   MATRIX-MULTIPLY-RECURSIVE( $A_{22}, B_{22}, C_{22}, n/2$ )
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