Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \widehat{C}$
4	$C \to \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right), A \to \left(\begin{array}{c c} A_T \\ \hline A_B \end{array}\right), B \to \left(\begin{array}{c c} B_T \\ \hline B_B \end{array}\right)$ where $C_{BR}$ is $0 \times 0$ , $A_B$ and $B_B$ have 0 rows
2	$\left\{ \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right)$
3	while $m(C_{BR}) < m(C)$ do
2,3	$ \left\{ \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \land m(C_{BR}) < m(C)  $
	Determine block size $b$
5a	$ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right) \rightarrow \left(\begin{array}{c c} C_{00} & * & * \\ \hline C_{10}^T & C_{11} & * \\ \hline C_{20} & C_{21} & C_{22} \end{array}\right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ B_1^T \\ \hline A_2 \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ B_1^T \\ \hline B_2 \end{array}\right) $ where $C_{11}$ is $b \times b$ , $A_1$ and $B_1$ have $b$ rows
	$\left(\begin{array}{c ccccccccccccccccccccccccccccccccccc$
6	$ \left\{ \begin{pmatrix} C_{00} & * & * \\ C_{10}^T & C_{11} & * \\ C_{20} & C_{21} & C_{22} \end{pmatrix} = \begin{pmatrix} C_{00} & * & * \\ C_{10}^T & C_{11} & * \\ A_2 B_0^T + \widehat{C}_{20} & A_2 B_1 + \widehat{C}_{21} & A_2 B_2^T + B_2 A_2^T + \widehat{C}_{22} \end{pmatrix} $
	$C_{11} := A_1^T B_1 + B_1^T A_1 + C_{11}$
8	$C_{10}^T := A_1^T B_0^T + C_{10}$
	$C_{21} := B_2 A_1 + C_{21}$
7	$ \left\{  \begin{pmatrix} C_{00} & * & * \\ C_{10}^T & C_{11} & * \\ C_{20} & C_{21} & C_{22} \end{pmatrix} = \begin{pmatrix} C_{00} & * & * \\ A_1^T B_0^T + \widehat{C}_{10}^T & A_1^T B_1 + B_1^T A_1 + \widehat{C}_{11} & * \\ A_2 B_0^T + \widehat{C}_{20} & A_2 b_1 + B_2 A_1 + \widehat{C}_{21} & A_2 B_2^T + B_2 A_2^T + \widehat{C}_{22} \end{pmatrix} \right\} $
5b	$ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} C_{00} & * & * \\ \hline C_{10}^T & C_{11} & * \\ \hline C_{20} & C_{21} & C_{22} \end{array}\right) , \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c c} A_0 \\ \hline A_1^T \\ A_2 \end{array}\right) , \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1^T \\ B_2 \end{array}\right) $
2	$\left\{ \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right)$
	endwhile
2,3	$\left\{ \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \land \neg (m(C_{BR}) < m(C))$
1b	$\{C := AB^T + BA^T + \widehat{C}.$

Step	Algorithm: $C := AB^T + BA^T + C$	
1a	{	1
4		
4	where	
2	WHELE	}
3	while do	J
<u> </u>	( do	1
2,3	^	}
	Determine block size $b$	
5a		
	where	
		1
6		}
8		
J		
7		
		1
5b		
2		
	endwhile	
2,3		}
1b	{	7
		_

Ia $\{C = \hat{C}\}$ 4 where   2 \lambda   3 while do   2.3 \lambda   5a where   6 \lambda   8 \lambda   7 \lambda   5b \lambda   2 \lambda   endwhile \lambda   2.3 \lambda \rightarrow \rightarro	Step	Algorithm: $C := AB^T + BA^T + C$	
where    2	1a	$\{C=\widehat{C}$	}
2	4	whove	
2,3 {	2	where {	$\left. \right\}$
Determine block size b  where  {	3	while do	
5a       where       6       8       7       5b       2       endwhile       2,3       \( \begin{align*}         & \lambda \cdot \\ \dagger \lambda \end{align*}         \( \lambda \cdot \end{align*}         \)	2,3		$\left. \right\}$
where       6       8       7       5b       2       endwhile       2,3		Determine block size b	
6 { 8	5a		
8 7 {		where	
7 { 5b 2 { endwhile 2,3 {	6		$\left. \right\}$
5b  2 {     endwhile  2,3 {	8		
2 {     endwhile     2,3 {	7		$\left. \begin{array}{c} - \\ \end{array} \right\}$
endwhile  2,3 {	5b		
$2,3  \left\{ \qquad \qquad \land \neg ( \qquad ) \right\}$	2		$\left. \begin{array}{c} - \\ \end{array} \right\}$
		endwhile	
1b $\{C := AB^T + BA^T + \widehat{C}.$	2,3	$\bigg   \bigg\{ \hspace{1cm} \wedge  \neg ( \hspace{1cm} ) \hspace{1cm} \\$	$\left. \right\}$
	1b	$\{C := AB^T + BA^T + \widehat{C}.$	}

4 where 2 $ \begin{cases} \begin{pmatrix} C_{TL} & * \\ C_{BL} & C_{BR} \end{pmatrix} = \begin{pmatrix} \hat{C}_{TL} & * \\ A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{pmatrix} $ 3 while do $ \begin{pmatrix} C_{TL} & * \\ C_{BL} & C_{BR} \end{pmatrix} = \begin{pmatrix} \hat{C}_{TL} & * \\ A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{pmatrix} \land $ Determine block size $b$ ia  where $ \begin{pmatrix} 6 & \\ 8 & \\ 8 & \\ 8 & \\ 8 & \\ 8 & \\ 8 & \\ 8 & \\ 6 & \\ 8 & \\ $
where $ \begin{pmatrix} C_{TL} & * \\ C_{BL} & C_{BR} \end{pmatrix} = \begin{pmatrix} \widehat{C}_{TL} & * \\ A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{pmatrix} $ while $ \begin{pmatrix} C_{TL} & * \\ C_{BL} & C_{BR} \end{pmatrix} = \begin{pmatrix} \widehat{C}_{TL} & * \\ A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{pmatrix} \wedge $ Determine block size $b$ where $ \begin{pmatrix} b & b & b & b & b & b & b & b & b & b &$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$ \frac{1}{\sqrt{C_{BL}}} \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \wedge \\ \text{Determine block size } b \\ \text{Sa} \qquad \text{where} \\ 6 \qquad \left\{ \begin{array}{c c} C_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \wedge \\ \text{Solution} \qquad \text{Solution} $
Determine block size b  where  {
Determine block size b  where  {
where 6 {
6 {
8
7 \{ \}
ib Sib
$ \begin{pmatrix} C_{TL} & * \\ C_{BL} & C_{BR} \end{pmatrix} = \begin{pmatrix} \widehat{C}_{TL} & * \\ A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{pmatrix} $
endwhile
$,3  \left\{ \left( \frac{C_{TL}}{C_{BL}} \middle  * \atop C_{BR} \right) = \left( \frac{\widehat{C}_{TL}}{A_B B_T^T + \widehat{C}_{BL}} \middle  A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \right) \land \neg ( ) \right\}$
b $\{C := AB^T + BA^T + \widehat{C}.$

Step	Algorithm: $C := AB^T + BA^T + C$	
1a	$\{C=\widehat{C}$	}
4	where	
2	$\left\{ \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right)$	$\left. \right\}$
3	while $m(C_{BR}) < m(C)$ do	
2,3	$ \left\{ \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C) $	
	Determine block size $b$	
5a	and and	
	where (	_
6		$\left. ight\}$
8		
7		$\left. \begin{array}{c} - \\ \end{array} \right\}$
5b		
2	$ \left\{ \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) $	igg
	endwhile	
2,3	$\left\{ \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \land \neg (m(C_{BR}) < m(C))$	$\left. \begin{array}{c} \\ \end{array}  ight\}$
1b	$\{C := AB^T + BA^T + \widehat{C}.$	}

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \widehat{C}$
4	$C \to \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right), A \to \left(\begin{array}{c c} A_T \\ \hline A_B \end{array}\right), B \to \left(\begin{array}{c c} B_T \\ \hline B_B \end{array}\right)$ where $C_{BR}$ is $0 \times 0$ , $A_B$ and $B_B$ have 0 rows
2	$ \left\{ \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) $
3	while $m(C_{BR}) < m(C)$ do
2,3	$ \left\{ \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C)  $
	Determine block size b
5a	whore
	where
6	
8	
7	
5b	
2	$ \left\{ \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) $
	endwhile
2,3	$\left\{ \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \land \neg (m(C_{BR}) < m(C)) \right\}$
1b	$\{C := AB^T + BA^T + \widehat{C}.$

Step	Algorithm: $C := AB^T + BA^T + C$	
1a	$\{C=\widehat{C}$	}
4	$C \to \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right), A \to \left(\begin{array}{c c} A_T \\ \hline A_B \end{array}\right), B \to \left(\begin{array}{c c} B_T \\ \hline B_B \end{array}\right)$ where $C_{BR}$ is $0 \times 0$ , $A_B$ and $B_B$ have 0 rows	
2	$ \left\{ \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) $	$oxed{\ }$
3	while $m(C_{BR}) < m(C)$ do	
2,3	$\left\{ \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C)$	$iggr \}$
	Determine block size $b$	
5a	$ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right) \to \left(\begin{array}{c c} C_{00} & * & * \\ \hline C_{10}^T & C_{11} & * \\ \hline C_{20} & C_{21} & C_{22} \end{array}\right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \to \left(\begin{array}{c c} A_0 \\ B_1^T \\ \hline A_2 \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \to \left(\begin{array}{c} B_0 \\ B_1^T \\ \hline B_2 \end{array}\right) $ where $C_{11}$ is $b \times b$ , $A_1$ and $B_1$ have $b$ rows	
		$\overline{}$
6		$\left. \right\}$
8		
7		$\left. \begin{array}{c} \\ \end{array} \right\}$
5b	$ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} C_{00} & * & * \\ \hline C_{10}^T & C_{11} & * \\ \hline C_{20} & C_{21} & C_{22} \end{array}\right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c c} A_0 \\ \hline A_1^T \\ A_2 \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1^T \\ B_2 \end{array}\right) $	
2	$ \left\{ \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) $	igg
	endwhile	
2,3	$\left\{ \left( \begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left( \begin{array}{c c} \widehat{C}_{TL} & * \\ \hline A_B B_T^T + \widehat{C}_{BL} & A_B B_B^T + B_B A_B^T + \widehat{C}_{BR} \end{array} \right) \land \neg (m(C_{BR}) < m(C))$	$\bigg\}$
1b	$\{C := AB^T + BA^T + \widehat{C}.$	}

Step Algorithm: 
$$C := AB^T + BA^T + C$$

1a  $\{C = \widehat{C}\}$ 

4  $C \rightarrow \left(\frac{C_{TL}}{C_{BL}} \mid \frac{*}{C_{BR}}\right)$ ,  $A \rightarrow \left(\frac{A_T}{A_B}\right)$ ,  $B \rightarrow \left(\frac{B_T}{B_B}\right)$ 

where  $C_{BR}$  is  $0 \times 0$ ,  $A_R$  and  $B_R$  have 0 rows

2  $\left\{\left(\frac{C_{TL}}{C_{BL}} \mid \frac{*}{C_{BR}}\right) = \left(\frac{\widehat{C}_{TL}}{A_BB_T^T + \widehat{C}_{BL}} \mid A_BB_B^T + B_BA_B^T + \widehat{C}_{BR}\right)$ 

3 while  $m(C_{BR}) < m(C)$  do

2.3  $\left\{\left(\frac{C_{TL}}{C_{BL}} \mid \frac{*}{C_{BL}}\right) = \left(\frac{\widehat{C}_{TL}}{A_BB_T^T + \widehat{C}_{BL}} \mid A_BB_B^T + B_BA_B^T + \widehat{C}_{BR}\right) \wedge m(C_{BR}) < m(C)$ 

Determine block size  $b$ 

$$\left(\frac{C_{TL}}{C_{BL}} \mid \frac{*}{C_{BR}}\right) \rightarrow \left(\frac{C_{00}}{C_{10}} \mid \frac{*}{C_{11}} \mid \frac{*}{A_B}\right) \rightarrow \left(\frac{A_0}{B_1^T}\right) + \left(\frac{B_T}{B_B}\right) \rightarrow \left(\frac{B_0}{B_1^T}\right)$$

where  $C_{11}$  is  $b \times b$ ,  $A_1$  and  $B_1$  have  $b$  rows

6  $\left\{\left(\frac{C_{00}}{C_{00}} \mid \frac{*}{A_1}\right) + \left(\frac{A_1}{A_2}\right) + \left(\frac{A_2}{A_1}\right) + \left(\frac{B_1}{B_2}\right) + \left(\frac{B_1}{B_2}\right)$ 

Step Algorithm: 
$$C := AB^T + BA^T + C$$

1a  $\{C = \widehat{C}\}$ 

4  $C \to \begin{pmatrix} C_{TL} & * \\ C_{BL} & | C_{BR} & | * * * \end{pmatrix}$ ,  $A \to \begin{pmatrix} A_T \\ A_B \end{pmatrix}$ ,  $B \to \begin{pmatrix} B_T \\ B_B \end{pmatrix}$ 

where  $C_{BR}$  is  $0 \times 0$ ,  $A_R$  and  $B_R$  have 0 rows

2  $\{\begin{pmatrix} C_{TL} & * \\ C_{BL} & | C_{BR} & | * * * \end{pmatrix}$ 

Abiliary  $B_R^T + \widehat{C}_{BL} = A_R B_R^T + \widehat{C}_{BL} = A_R B_R^T + \widehat{C}_{BR} = A_R^T +$ 

$$\begin{array}{lll} & & & & \\ & & & \\ & & & \\ & & & \\ & &$$

Algorithm: $C := AB^T + BA^T + C$
$C \to \begin{pmatrix} C_{TL} & * \\ C_{BL} & C_{BR} \end{pmatrix}, A \to \begin{pmatrix} A_T \\ A_B \end{pmatrix}, B \to \begin{pmatrix} B_T \\ B_B \end{pmatrix}$ where $C_{BR}$ is $0 \times 0$ , $A_B$ and $B_B$ have 0 rows
while $m(C_{BR}) < m(C)$ do
Determine block size $b$ $ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right) \rightarrow \left(\begin{array}{c c} C_{00} & * & * \\ \hline C_{10} & C_{11} & * \\ \hline C_{20} & C_{21} & C_{22} \end{array}\right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c c} A_0 \\ B_1^T \\ \hline A_2 \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ B_1^T \\ \hline B_2 \end{array}\right) $ where $C_{11}$ is $b \times b$ , $A_1$ and $B_1$ have $b$ rows
$C_{11} := A_1^T B_1 + B_1^T A_1 + C_{11}$ $C_{10}^T := A_1^T B_0^T + C_{10}$ $C_{21} := B_2 A_1 + C_{21}$
$ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} C_{00} & * & * \\ \hline C_{10}^T & C_{11} & * \\ \hline C_{20} & C_{21} & C_{22} \end{array}\right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c c} A_0 \\ \hline A_1^T \\ A_2 \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1^T \\ B_2 \end{array}\right) $
endwhile

Algorithm:  $C := AB^T + BA^T + C$ 

$$C o \left( \begin{array}{c|c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \,,\, A o \left( \begin{array}{c|c} A_T \\ \hline A_B \end{array} \right) \,,\, B o \left( \begin{array}{c|c} B_T \\ \hline B_B \end{array} \right)$$

where  $C_{BR}$  is  $0 \times 0$ ,  $A_B$  and  $B_B$  have 0 rows

while  $m(C_{BR}) < m(C)$  do

Determine block size b

$$\left(\begin{array}{c|c|c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right) \to \left(\begin{array}{c|c|c} C_{00} & * & * \\ \hline C_{10}^T & C_{11} & * \\ \hline C_{20} & C_{21} & C_{22} \end{array}\right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \to \left(\begin{array}{c|c} A_0 \\ B_1^T \\ \hline A_2 \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \to \left(\begin{array}{c} B_0 \\ B_1^T \\ \hline B_2 \end{array}\right)$$

where  $C_{11}$  is  $b \times b$ ,  $A_1$  and  $B_1$  have b rows

$$C_{11} := A_1^T B_1 + B_1^T A_1 + C_{11}$$

$$C_{10}^T := A_1^T B_0^T + C_{10}$$

$$C_{21} := B_2 A_1 + C_{21}$$

$$\left(\begin{array}{c|c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c|c} C_{00} & * & * \\ \hline C_{10}^T & C_{11} & * \\ \hline C_{20} & C_{21} & C_{22} \end{array}\right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c|c} A_0 \\ \hline A_1^T \\ \hline A_2 \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1^T \\ B_2 \end{array}\right)$$

endwhile