

Step	Algorithm:
1a	
4	
	where
2	
3	while do
2,3	\wedge
5a	
	where
6	
8	
5b	
7	
2	
	endwhile
2,3	$\wedge \neg(\quad)$
1b	

Step	Algorithm: $[C] := \text{SYR2K_LT_BLK_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	$A \rightarrow \begin{pmatrix} A_T \\ A_B \end{pmatrix}, B \rightarrow \begin{pmatrix} B_T \\ B_B \end{pmatrix}$ where A_B has 0 rows, B_B has 0 rows
2	$C = A_B^T B_B + B_B^T A_B + \widehat{C}$
3	while $m(A_B) < m(A)$ do
2,3	$C = A_B^T B_B + B_B^T A_B + \widehat{C} \wedge m(A_B) < m(A)$
5a	Determine block size b $\begin{pmatrix} A_T \\ A_B \end{pmatrix} \rightarrow \begin{pmatrix} A_0 \\ A_1 \\ A_2 \end{pmatrix}, \begin{pmatrix} B_T \\ B_B \end{pmatrix} \rightarrow \begin{pmatrix} B_0 \\ B_1 \\ B_2 \end{pmatrix}$ where A_1 has b rows, B_1 has b rows
6	$C = A_2^T B_2 + B_2^T A_2 + \widehat{C}$
8	$C := A_1^T B_1 + B_1^T A_1 + \widehat{C}$
5b	$\begin{pmatrix} A_T \\ A_B \end{pmatrix} \leftarrow \begin{pmatrix} A_0 \\ A_1 \\ A_2 \end{pmatrix}, \begin{pmatrix} B_T \\ B_B \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \\ B_1 \\ B_2 \end{pmatrix}$
7	$C = A_2^T B_2 + B_2^T A_2 + A_1^T B_1 + B_1^T A_1 + \widehat{C}$
2	$C = A_B^T B_B + B_B^T A_B + \widehat{C}$
	endwhile
2,3	$C = A_B^T B_B + B_B^T A_B + \widehat{C} \wedge \neg(m(A_B) < m(A))$
1b	$[C] = \text{Syr2k_lt}(A, B, \widehat{C})$

Algorithm: $[C] := \text{SYR2K_LT_BLK_VAR5}(A, B, C)$

$$A \rightarrow \begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix}, B \rightarrow \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix}$$

where A_B has 0 rows, B_B has 0 rows

while $m(A_B) < m(A)$ **do**

Determine block size b

$$\begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix} \rightarrow \begin{pmatrix} A_0 \\ \overline{A_1} \\ A_2 \end{pmatrix}, \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix} \rightarrow \begin{pmatrix} B_0 \\ \overline{B_1} \\ B_2 \end{pmatrix}$$

where A_1 has b rows, B_1 has b rows

$$C := A_1^T B_1 + B_1^T A_1 + \widehat{C}$$

$$\begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix} \leftarrow \begin{pmatrix} A_0 \\ \overline{A_1} \\ A_2 \end{pmatrix}, \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \\ \overline{B_1} \\ B_2 \end{pmatrix}$$

endwhile

Step	Algorithm: $[C] := \text{SYR2K_LT_BLK_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	where
2	
3	while do
2,3	\wedge
5a	Determine block size
	where
6	
8	
5b	
7	
2	
	endwhile
2,3	$\wedge \neg($
1b	$[C] = \text{Syr2k_lt}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K_LT_BLK_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	where
2	$C = A_B^T B_B + B_B^T A_B + \widehat{C}$
3	while do
2,3	$C = A_B^T B_B + B_B^T A_B + \widehat{C} \wedge$
5a	Determine block size
	where
6	
8	
5b	
7	
2	$C = A_B^T B_B + B_B^T A_B + \widehat{C}$
	endwhile
2	$C = A_B^T B_B + B_B^T A_B + \widehat{C} \wedge \neg($
1b	$[C] = \text{Syr2k_lt}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K_LT_BLK_VAR5}(A, B, C)$
1a	$C = \hat{C}$
4	where
2	$C = A_B^T B_B + B_B^T A_B + \hat{C}$
3	while $m(A_B) < m(A)$ do
2,3	$C = A_B^T B_B + B_B^T A_B + \hat{C} \wedge m(A_B) < m(A)$
5a	Determine block size where
6	
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2	$C = A_B^T B_B + B_B^T A_B + \hat{C}$
	endwhile
2,3	$C = A_B^T B_B + B_B^T A_B + \hat{C} \wedge \neg(m(A_B) < m(A))$
1b	$[C] = \text{Syr2k_lt}(A, B, \hat{C})$

Step	Algorithm: $[C] := \text{SYR2K_LT_BLK_VAR5}(A, B, C)$
1a	$C = \hat{C}$
4	$A \rightarrow \begin{pmatrix} A_T \\ A_B \end{pmatrix}, B \rightarrow \begin{pmatrix} B_T \\ B_B \end{pmatrix}$ where A_B has 0 rows, B_B has 0 rows
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3	while $m(A_B) < m(A)$ do
2,3	$C = A_B^T B_B + B_B^T A_B + \hat{C} \wedge m(A_B) < m(A)$
5a	<p>Determine block size</p> <p>where</p>
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2	$C = A_B^T B_B + B_B^T A_B + \hat{C}$
	endwhile
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5b	$\begin{pmatrix} A_T \\ A_B \end{pmatrix} \leftarrow \begin{pmatrix} A_0 \\ A_1 \\ A_2 \end{pmatrix}, \begin{pmatrix} B_T \\ B_B \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \\ B_1 \\ B_2 \end{pmatrix}$
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2	$C = A_B^T B_B + B_B^T A_B + \widehat{C}$
	endwhile
2,3	$C = A_B^T B_B + B_B^T A_B + \widehat{C} \wedge \neg(m(A_B) < m(A))$
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2	$C = A_B^T B_B + B_B^T A_B + \widehat{C}$
	endwhile
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2	$C = A_B^T B_B + B_B^T A_B + \widehat{C}$
	endwhile
2	$C = A_B^T B_B + B_B^T A_B + \widehat{C} \wedge \neg(m(A_B) < m(A))$
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Step	Algorithm: $[C] := \text{SYR2K_LT_BLK_VAR5}(A, B, C)$
	$A \rightarrow \begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix}, B \rightarrow \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix}$ <p>where A_B has 0 rows, B_B has 0 rows</p>
	while $m(A_B) < m(A)$ do
	<p>Determine block size b</p> $\begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix} \rightarrow \begin{pmatrix} \overline{A_0} \\ \overline{A_1} \\ \overline{A_2} \end{pmatrix}, \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix} \rightarrow \begin{pmatrix} \overline{B_0} \\ \overline{B_1} \\ \overline{B_2} \end{pmatrix}$ <p>where A_1 has b rows, B_1 has b rows</p>
	$C := A_1^T B_1 + B_1^T A_1 + \hat{C}$
	$\begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix} \leftarrow \begin{pmatrix} \overline{A_0} \\ \overline{A_1} \\ \overline{A_2} \end{pmatrix}, \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix} \leftarrow \begin{pmatrix} \overline{B_0} \\ \overline{B_1} \\ \overline{B_2} \end{pmatrix}$
	endwhile

Algorithm: $[C] := \text{SYR2K_LT_BLK_VAR5}(A, B, C)$

$$A \rightarrow \begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix}, B \rightarrow \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix}$$

where A_B has 0 rows, B_B has 0 rows

while $m(A_B) < m(A)$ **do**

Determine block size b

$$\begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix} \rightarrow \begin{pmatrix} A_0 \\ \overline{A_1} \\ A_2 \end{pmatrix}, \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix} \rightarrow \begin{pmatrix} B_0 \\ \overline{B_1} \\ B_2 \end{pmatrix}$$

where A_1 has b rows, B_1 has b rows

$$C := A_1^T B_1 + B_1^T A_1 + \widehat{C}$$

$$\begin{pmatrix} A_T \\ \overline{A_B} \end{pmatrix} \leftarrow \begin{pmatrix} A_0 \\ \overline{A_1} \\ A_2 \end{pmatrix}, \begin{pmatrix} B_T \\ \overline{B_B} \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \\ \overline{B_1} \\ B_2 \end{pmatrix}$$

endwhile