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

Step	Algorithm: $[C] := \text{SYR2K\_LT\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right)$, $B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right)$ where A_T has 0 rows, B_T has 0 rows
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
3	while $m(A_T) < m(A)$ do
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge m(A_T) < m(A)$
5a	**Determine block size** b $\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$ where A_1 has b rows, B_1 has b rows
6	$C = A_0^T B_0 + B_0^T A_0 + \widehat{C}$
8	$C := A_1^T B_1 + B_1^T A_1 + \widehat{C}$
5b	$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$
7	$C = A_0^T B_0 + B_0^T A_0 + A_1^T B_1 + B_1^T A_1 + \widehat{C}$
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
	endwhile
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$
1b	$[C] = \text{Syr2k\_lt}(A, B, \widehat{C})$

Algorithm: $[C] := \text{SYR2K\_LT\_BLK\_VAR5}(A, B, C)$

$$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right), \quad B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right)$$

where A_T has 0 rows, B_T has 0 rows

while $m(A_T) < m(A)$ do

Determine block size b

$$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right), \quad \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$$

where A_1 has b rows, B_1 has b rows

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

$$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right), \quad \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$$

endwhile

Step	Algorithm: $[C] := \textsc{Syr2k\_lt\_blk\_var5}(A, B, C)$
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	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
3	while do
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge$
5a	**Determine block size** where
6	
8	
5b	
7	
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
	endwhile
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge \neg($ $)$
1b	$[C] = \text{Syr2k\_lt}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_LT\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	where
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
3	while $m(A_T) < m(A)$ do
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge m(A_T) < m(A)$
5a	**Determine block size** where
6	
8	
5b	
7	
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
	endwhile
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$
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	$A \rightarrow \left(\frac{A_T}{A_B}\right)$, $B \rightarrow \left(\frac{B_T}{B_B}\right)$ where A_T has 0 rows, B_T has 0 rows
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
3	while $m(A_T) < m(A)$ do
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge m(A_T) < m(A)$
5a	**Determine block size** where
6	
8	
5b	
7	
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
	endwhile
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$
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	$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right)$, $B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right)$ where A_T has 0 rows, B_T has 0 rows
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
3	while $m(A_T) < m(A)$ do
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge m(A_T) < m(A)$
5a	**Determine block size** b $\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$ where A_1 has b rows, B_1 has b rows
6	
8	
5b	$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$
7	
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
	endwhile
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$
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	$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right)$, $B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right)$ where A_T has 0 rows, B_T has 0 rows
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
3	while $m(A_T) < m(A)$ do
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge m(A_T) < m(A)$
5a	**Determine block size** b $\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$ where A_1 has b rows, B_1 has b rows
6	$C = A_0^T B_0 + B_0^T A_0 + \widehat{C}$
8	
5b	$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$
7	
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
	endwhile
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$
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	$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right)$, $B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right)$ where A_T has 0 rows, B_T has 0 rows
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
3	while $m(A_T) < m(A)$ do
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge m(A_T) < m(A)$
5a	**Determine block size** b $\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$ where A_1 has b rows, B_1 has b rows
6	$C = A_0^T B_0 + B_0^T A_0 + \widehat{C}$
8	
5b	$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$
7	$C = A_0^T B_0 + B_0^T A_0 + A_1^T B_1 + B_1^T A_1 + \widehat{C}$
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
	endwhile
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$
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	$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right)$, $B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right)$ where A_T has 0 rows, B_T has 0 rows
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
3	while $m(A_T) < m(A)$ do
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge m(A_T) < m(A)$
5a	**Determine block size** b $\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$ where A_1 has b rows, B_1 has b rows
6	$C = A_0^T B_0 + B_0^T A_0 + \widehat{C}$
8	$C := A_1^T B_1 + B_1^T A_1 + \widehat{C}$
5b	$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$
7	$C = A_0^T B_0 + B_0^T A_0 + A_1^T B_1 + B_1^T A_1 + \widehat{C}$
2	$C = A_T^T B_T + B_T^T A_T + \widehat{C}$
	endwhile
2,3	$C = A_T^T B_T + B_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$
1b	$[C] = \text{Syr2k\_lt}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_LT\_BLK\_VAR5}(A, B, C)$
	$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right)$, $B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right)$ where A_T has 0 rows, B_T has 0 rows
	while $m(A_T) < m(A)$ do
	Determine block size b $\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$ where A_1 has b rows, B_1 has b rows
	$C := A_1^T B_1 + B_1^T A_1 + \widehat{C}$
	$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$, $\left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$
	endwhile

Algorithm: $[C] := \text{SYR2K\_LT\_BLK\_VAR5}(A, B, C)$

$$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right), \quad B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right)$$

where A_T has 0 rows, B_T has 0 rows

while $m(A_T) < m(A)$ do

Determine block size b

$$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right), \quad \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$$

where A_1 has b rows, B_1 has b rows

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

$$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right), \quad \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline B_1 \\ \hline B_2 \end{array}\right)$$

endwhile