| Step | Algorithm: $[C] := \text{SYRK\_AC\_BLK\_VAR2}(A, C)$ |
|---|---|
| 1a | $\{C = \widehat{C}$ $\}$ |
| 4 | $A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right)$ where $A_T$ has 0 rows |
| 2 | $\{C = A_T^T A_T + \widehat{C}$ $\}$ |
| 3 | while $m(A_T) < m(A)$ do |
| 2,3 | $\left\{ C = A_T^T A_T + \widehat{C} \wedge m(A_T) < m(A) \right\}$ |
| 5a | **Determine block size** $b$<br>$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$<br>where $A_1$ has $b$ rows |
| 6 | $\{ C = A_0^T A_0 + \widehat{C}$ $\}$ |
| 8 | $C = A_1^T A_1 + C$ |
| 7 | $\{ C = A_0^T A_0 + A_1^T A_1 + \widehat{C}$ $\}$ |
| 5b | $\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$ |
| 2 | $\{ C = A_T^T A_T + \widehat{C}$ $\}$ |
| | endwhile |
| 2,3 | $\{C = A_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$ $\}$ |
| 1b | $\{[C] = \text{syrk\_ac}(A, \widehat{C})$ $\}$ |

| Step | Algorithm: $[C] := \text{SYRK\_AC\_BLK\_VAR2}(A, C)$ |
|---|---|
| 1a | $\{$ $\}$ |
| 4 | where |
| 2 | $\{$ $\}$ |
| 3 | while do |
| 2,3 | $\{$ $\wedge$ $\}$ |
| 5a | **Determine block size** $b$ where |
| 6 | $\{$ $\}$ |
| 8 | |
| 7 | $\{$ $\}$ |
| 5b | |
| 2 | $\{$ $\}$ |
| | endwhile |
| 2,3 | $\{$ $\wedge \neg($ $)$ $\}$ |
| 1b | $\{$ $\}$ |

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| 2 | $\{C = A_T^T A_T + \widehat{C}$ $\}$ |
| 3 | while do |
| 2,3 | $\left\{ C = A_T^T A_T + \widehat{C} \wedge \right.$ $\left.\right\}$ |
| 5a | **Determine block size** $b$ where |
| 6 | $\{$ $\}$ |
| 8 | |
| 7 | $\{$ $\}$ |
| 5b | |
| 2 | $\{ C = A_T^T A_T + \widehat{C}$ $\}$ |
| | endwhile |
| 2,3 | $\{C = A_T^T A_T + \widehat{C} \wedge \neg($ $)$ $\}$ |
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| | endwhile |
| 2,3 | $\{C = A_T^T A_T + \widehat{C} \wedge \neg(m(A_T) < m(A))$ $\}$ |
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| 6 | $\{$ $\}$ |
| 8 | |
| 7 | $\{$ $\}$ |
| 5b | $\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$ |
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| | |
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| | |

Algorithm: $[C] := \text{SYRK\_AC\_BLK\_VAR2}(A, C)$

$$A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right)$$

where $A_T$ has 0 rows

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

**Determine block size** $b$

$$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$$

where $A_1$ has $b$ rows

$$C = A_1^T A_1 + C$$

$$\left(\begin{array}{c} A_T \\ \hline A_B \end{array}\right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline A_1 \\ \hline A_2 \end{array}\right)$$

endwhile