procedure CUDADECOMPOSEDCONVOLUTION($\mathcal{P}$, signal, kernel, $K$, $L$, $M$, norm)

$signal' \leftarrow \text{Decompose}(signal, \mathcal{P})$

$kernel' \leftarrow \text{Decompose}(kernel, \mathcal{P})$

for $k \leftarrow 0, \mathcal{P} - 1$ do

$\text{CudaConvolution}(signal'_k, kernel'_k, K/\mathcal{P}, L, M, \text{norm})$

end for

$signal \leftarrow \text{Compose}(signal', \mathcal{P})$

end procedure

The remaining procedures were implemented as follows:

$\text{Decompose}_8 = \text{Decompose}_4 \circ \text{Decompose}_2$, 
$\text{Decompose}_{16} = \text{Decompose}_4 \circ \text{Decompose}_4$, 
$\text{Compose}_8 = \text{Compose}_2 \circ \text{Compose}_4$, 
$\text{Compose}_{16} = \text{Compose}_4 \circ \text{Compose}_4$, 

where $\circ$ denotes a composition of operations.