

Forward - Backward Algorithm.

Input: $x[0], x[1], \dots, x[n-1]$

Output: $y[0], y[1], \dots, y[n-1]$

where: $\therefore y[j] = \bigoplus_{i \in \{0, \dots, n-1\} \setminus j} x[i]$, $\oplus$: min* operation.

Algorithm Description.

0: Input: x : length- n input vector.

1. Initialization:

forward: A zero vector of size n .

backward: A zero vector of size n .

y : A zero vector of size n .

forward[0] = input[0]

backward[n-1] = input[n-1]

2. Forward process:

for $i = 1 : n-1$

 forward[i] = forward[i-1] $\oplus$ input[i]

end.

3. Backward process:

for $i = n-2 : 1$

 backward[i] = backward[i+1] $\oplus$ input[i]

 output[i] = backward[i+1] $\oplus$ forward[i+1]

end

output[0] = backward[1]