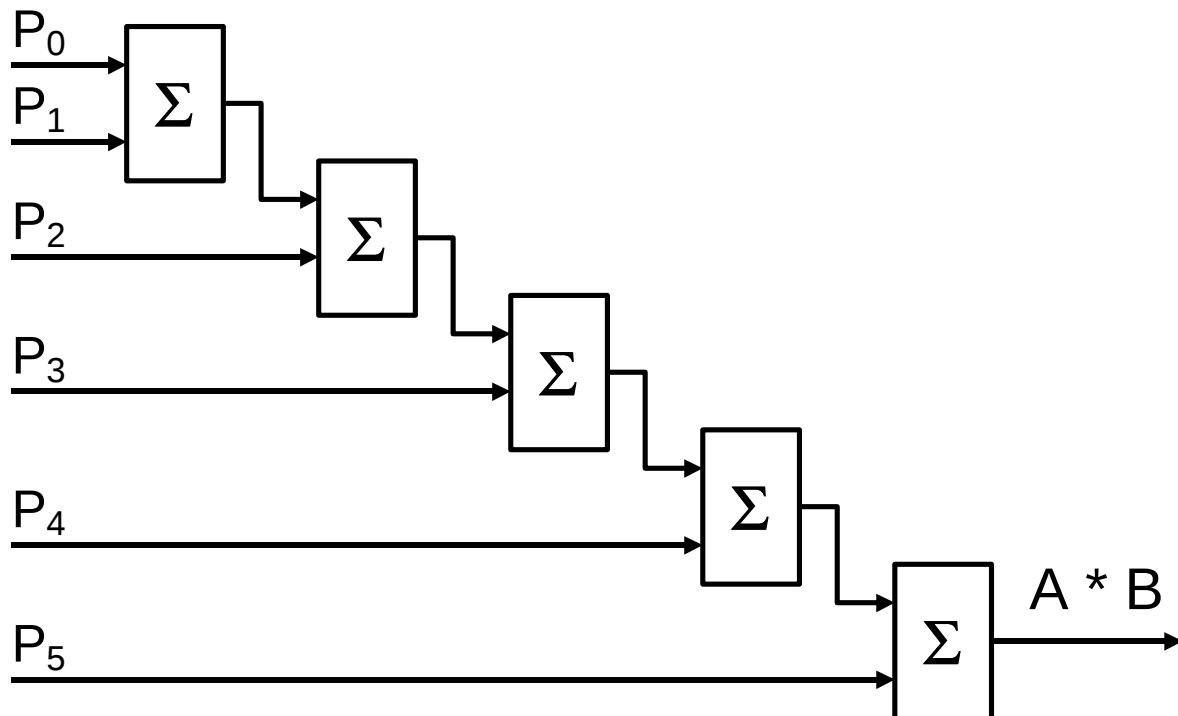


Otsekorrutamine

1.



$A = 011001$

$B = 101101$

$P_0 = A$

$P_1 = 0$

$P_2 = L2(A)$

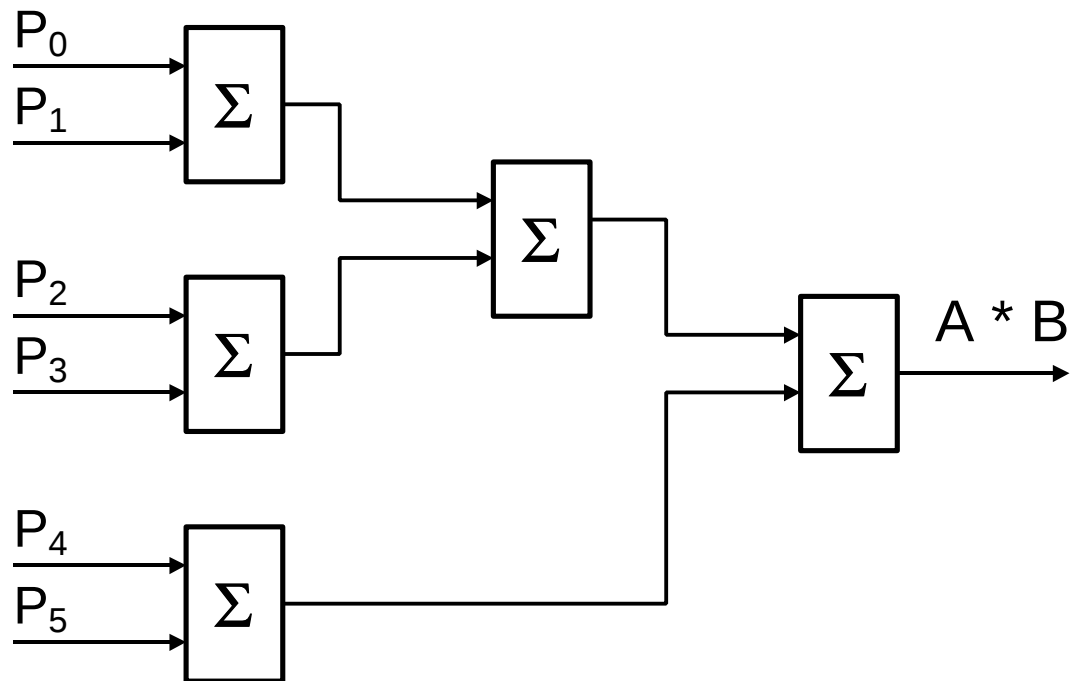
$P_3 = L3(A)$

$P_4 = 0$

$P_5 = (L5(A))_t \quad -32 * A$

Viide: $5 * \Sigma$ viide

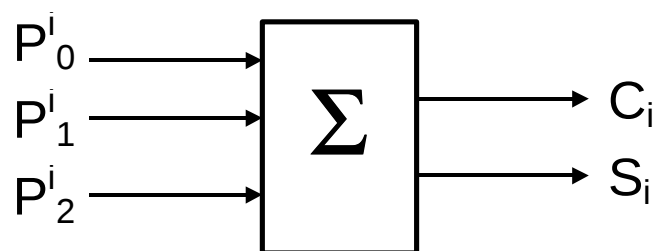
2.



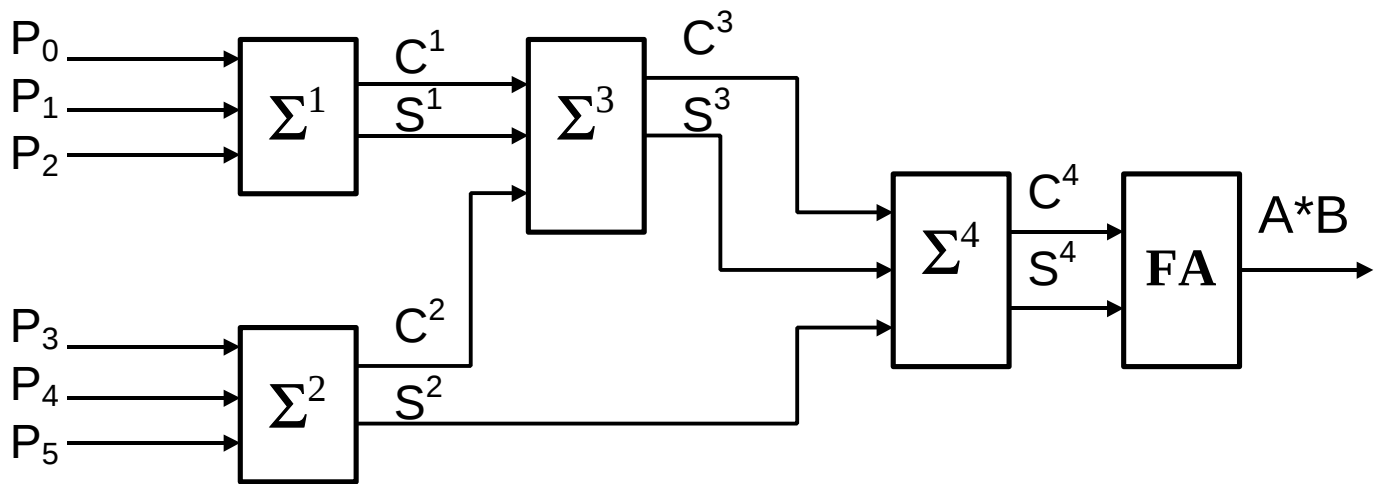
Viide: $3 * \Sigma$ viide

3.

Kasutada: mittetäissummaatoreid



Väljund $\Sigma \Rightarrow$ FA



Σ^1 : P_0 00011001
 P_1 00000000
 P_2 01100100

 C^1 00000000
 S^1 01111101

Σ^2 : P_3 00011001 (000)
 P_4 00000000
 P_5 10011100

 C^2 00011000
 S^2 10000101

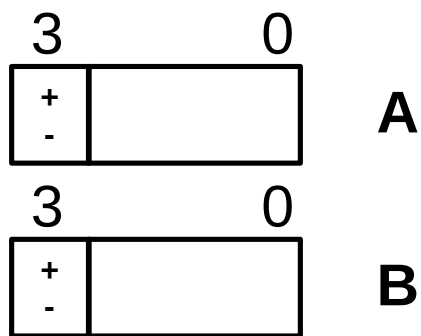
L3

$$\begin{array}{rcl}
 \Sigma^3: & C^1 & 000\ 000\ 000\ 00 \quad \leftarrow 1 \\
 & S^1 & 000\ 011\ 111\ 01 \\
 & C^2 & 001\ 100\ 000\ 00 \quad \leftarrow 1 \\
 & \hline
 & C^3 & 000\ 000\ 000\ 00 \\
 & S^3 & 001\ 111\ 111\ 01
 \end{array}$$

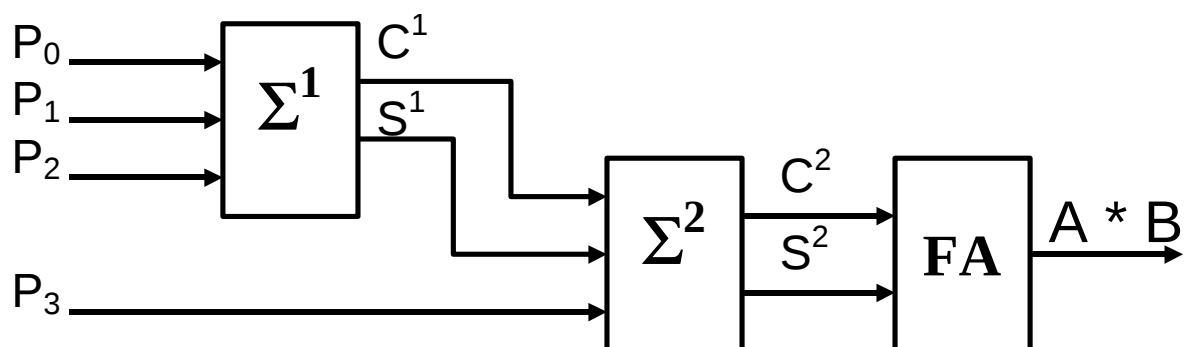
$$\begin{array}{rcl}
 \Sigma^4: & C^3 & 000\ 000\ 000\ 00 \quad \leftarrow 1 \\
 & S^3 & 001\ 111\ 111\ 01 \\
 & S^2 & 100\ 001\ 010\ 00 \\
 & \hline
 & C^4 & 000\ 001\ 010\ 00 \\
 & S^4 & 101\ 110\ 101\ 01
 \end{array}$$

$$\begin{array}{rcl}
 \text{FA:} & C^4 & 000\ 001\ 010\ 000 \quad \leftarrow 1 \\
 & S^4 & 110\ 111\ 010\ 101 \\
 & \hline
 A*B & & 111\ 000\ 100\ 101
 \end{array}$$

$$\begin{array}{l}
 \text{Viide: } 2\tau + 2\tau + 2\tau + 5\tau = 11\tau \\
 \begin{array}{cccc}
 \Sigma^1 & \Sigma^3 & \Sigma^4 & \text{FA} \\
 \Sigma^2 & & & \text{LACG}
 \end{array}
 \end{array}$$



Organiseerida max. kiire korrutamine



N: A = -6 ⇒ 1010
B = -5 ⇒ 1011

P₀ = 1111010
P₁ = 1110100
P₂ = 0000000
P₃ = 0110000

Σ¹:

P ₀	1111010
P ₁	1110100
P ₂	0000000
C¹	1110000
S¹	0001110

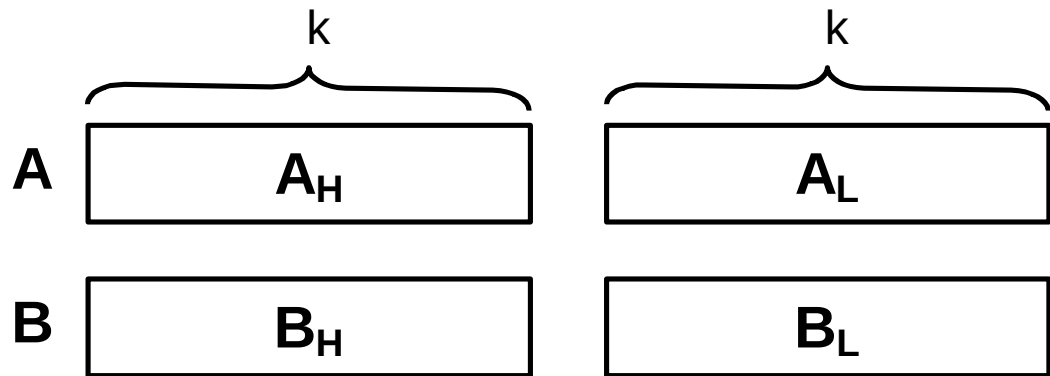
$$\begin{array}{rcl}
 \Sigma^2: & C^1 & 11100000 \quad \leftarrow 1 \\
 & S^1 & 00001110 \\
 & P^3 & 00110000 \\
 \hline
 & C^2 & 00100000 \\
 & S^2 & 11011110
 \end{array}$$

$$\begin{array}{rcl}
 \text{FA:} & C^2 & 01000000 \quad \leftarrow 1 \\
 & S^2 & 11011110 \\
 \hline
 & & 00011110
 \end{array}$$

$$A * B = +30$$

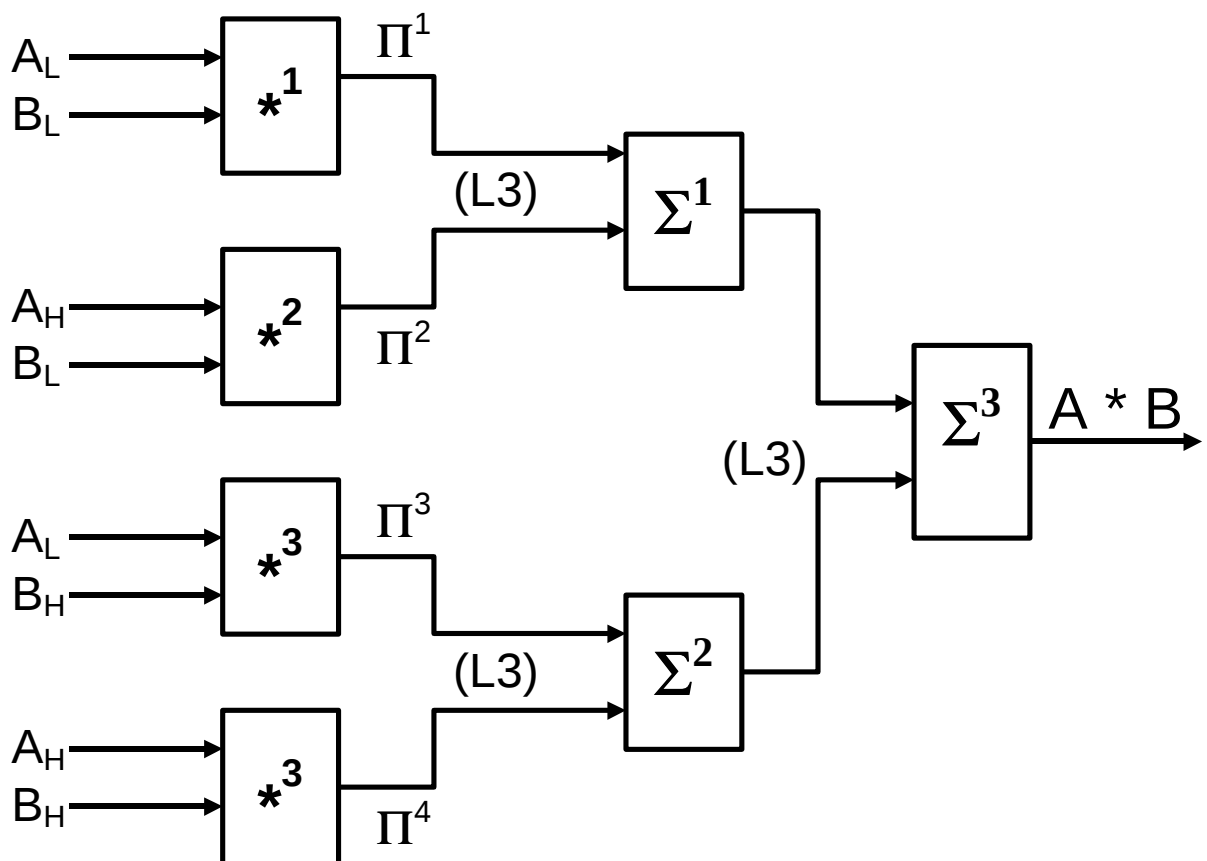
$$\begin{array}{lcl}
 \text{Viide:} & 2\tau & + 2\tau + 5\tau = 9\tau \\
 & \Sigma^1 & \Sigma^2 \quad \text{FA}
 \end{array}$$

Sektsioneeritud korrutamine



$$A * B = A_L * B_L + L(k)(A_H * B_L + A_L * B_H) + L(2k)(A_H * B_H)$$

$k = 3$



$$A: \quad \overbrace{011}^{A_H} \quad \overbrace{100}^{A_L} \quad = +28$$

$$B: \quad \underbrace{010}_{B_H} \quad \underbrace{101}_{B_L} \quad = +21$$

$$\Pi^1 = 10100 \quad A_L \cdot B_L = 4 \cdot 5 = 20$$

$$\Pi^2 = 01111 \quad A_H \cdot B_L = 3 \cdot 5 = 15$$

$$\Pi^3 = 01000 \quad A_L \cdot B_H = 4 \cdot 2 = 8$$

$$\Pi^4 = 00110 \quad A_H \cdot B_H = 3 \cdot 2 = 6$$

$$\begin{array}{rcl} \Sigma^1: & 000010100 & (\Pi^1) \\ & \underline{001111000} & \text{L3 } (\Pi^2) \\ & 010001100 & \end{array}$$

$$\begin{array}{rcl} \Sigma^2: & 000001000 & (\Pi^3) \\ & \underline{000110000} & \text{L3 } (\Pi^4) \\ & 000111000 & \end{array}$$

$$\begin{array}{rcl} \Sigma^3: & 000010001100 & (\Sigma^1) \\ & \underline{000111000000} & \text{L3 } (\Sigma^2) \\ & 001001001100 & \end{array}$$