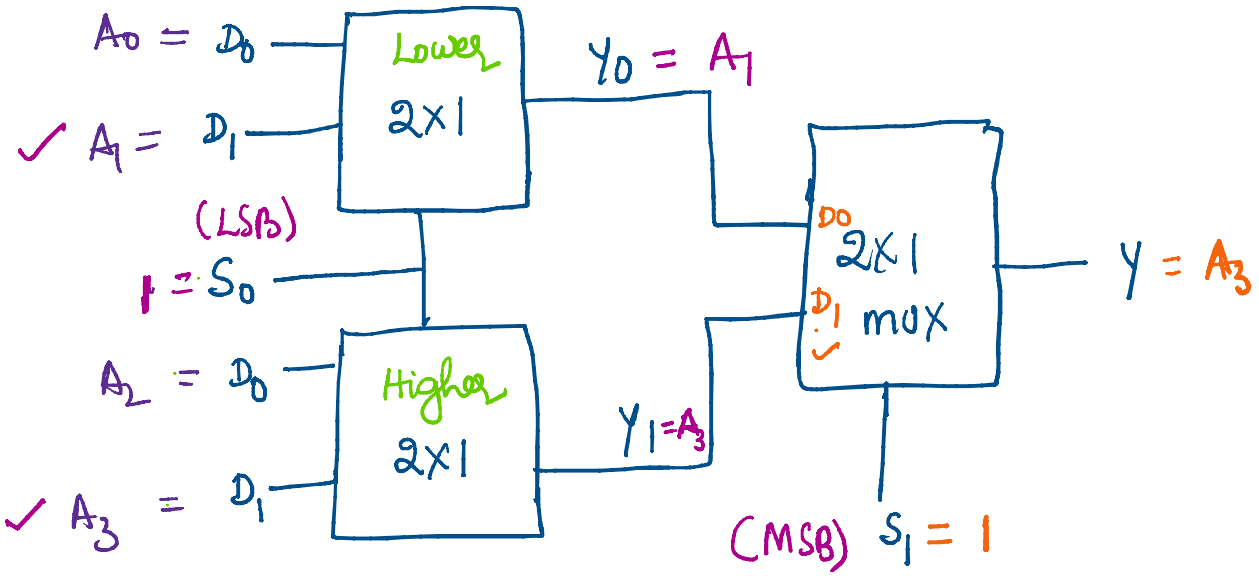
Higher order Multiplexer Design

4×1 multiplexer using 2×1 multiplexer



Required → 4×1 mux

Available → 2×1

S_1	S_0	Y
1	1	=

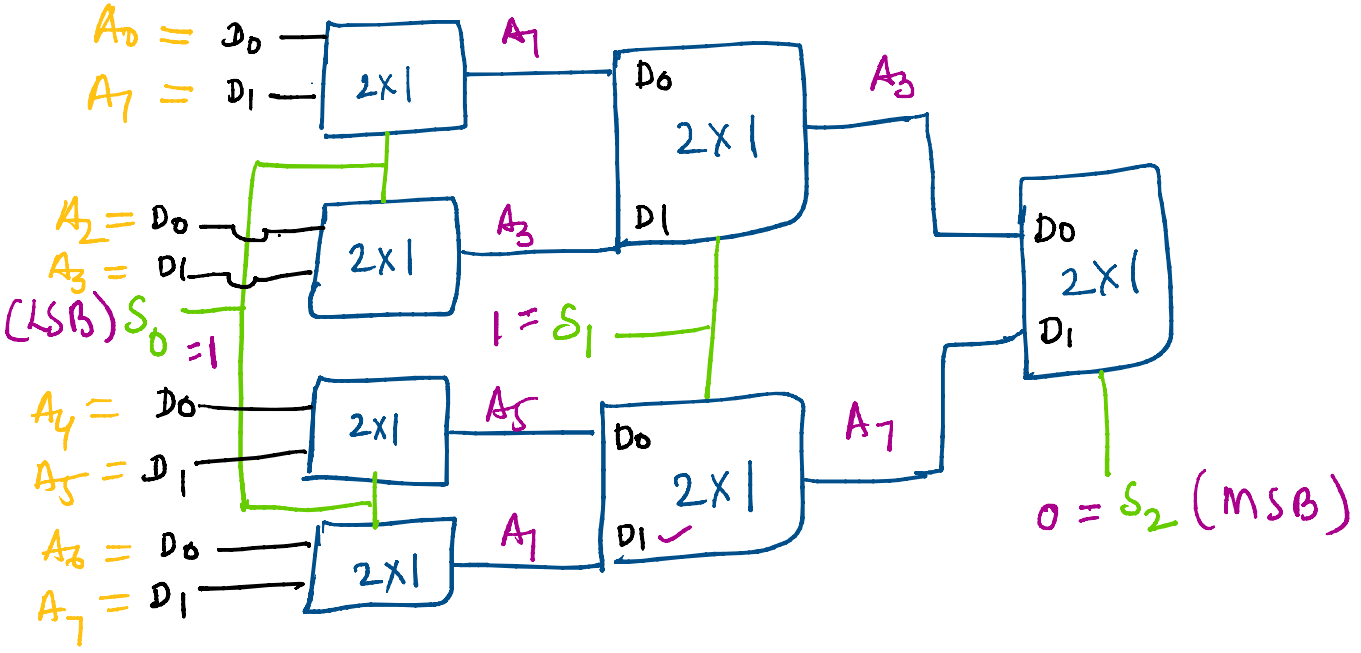
No. of multiplexers required = $\frac{\text{Required mux i/ps}}{\text{Available mux i/p}} = \frac{4}{2} = 2$

No. of 2×1 mux required to design 16×1 mux = ___

8×1 mux using 2×1 mux

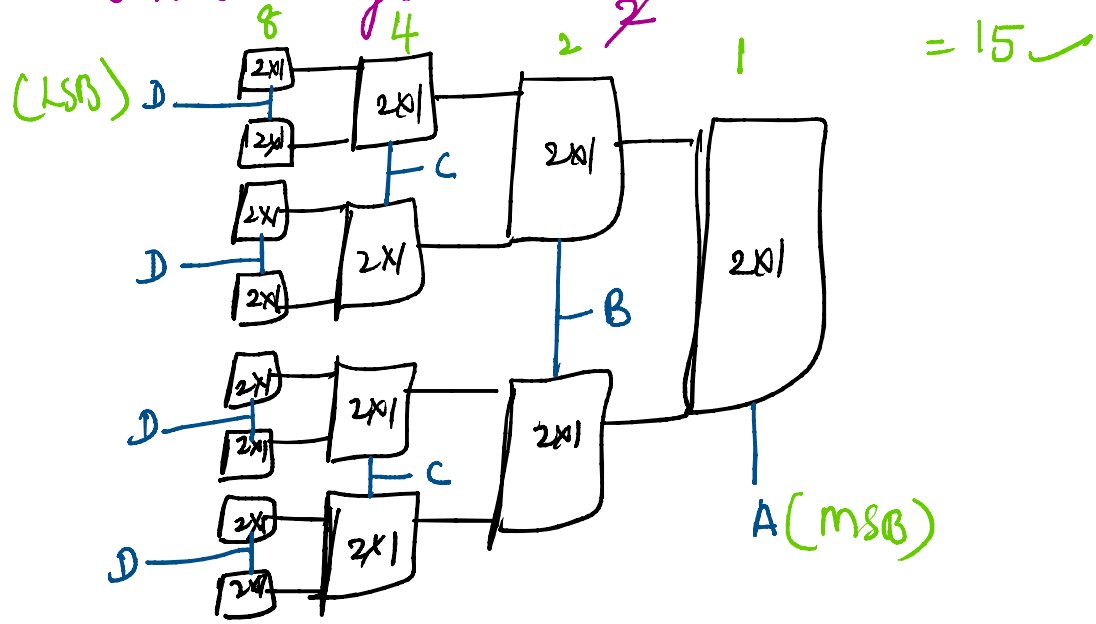
8×1 mux using 2×1 mux

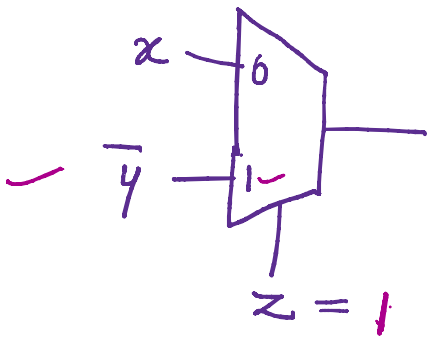
No. of mux Required in first stage = $\frac{\text{Required mux i/p}}{\text{Available mux i/p}} = \frac{8}{2} = 4$



16×1 mux using 2×1 mux

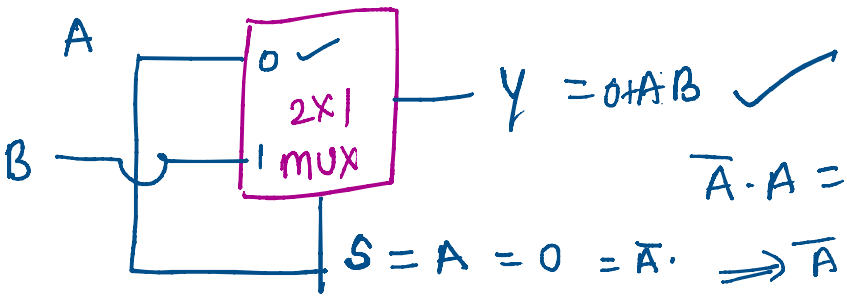
first stage = $\frac{16}{2} = 8$

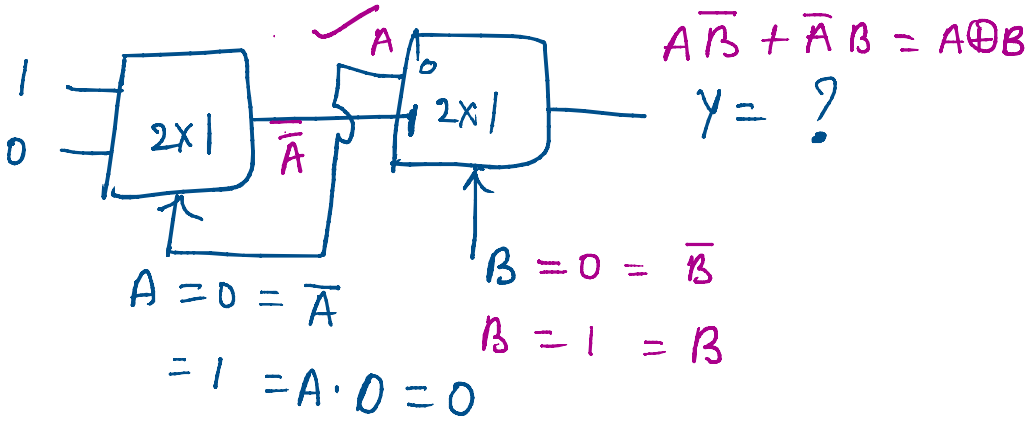




o/p = $x\bar{z} + \bar{y}z$

$x\bar{z} + \bar{y}z$





$A\bar{B} + \bar{A}B = A \oplus B$

Y = ?