INVERSE INITIAL PERMUTATION (IP^{-1})

A clear 8-bit example: put each bit back into its original position

DES | CLASS LECTURE

IDEA: Inverse IP reverses the earlier permutation and restores the original bit order.

1 Input: bits after IP

1	2	3	4	5	6	7	8
0	1	0	0	1	1	0	1

2 Inverse permutation rule

5	1	6	2	7	3	8	4

Read this rule from left to right.

3 Move each bit back to its original position

ORIGINAL POSITION	1	2	3	4	5	6	7	8
TAKE BIT FROM IP OUTPUT	5	1	6	2	7	3	8	4
RESTORED BIT	1	0	1	1	0	0	1	0

Example: Original bit 1 = IP-output bit 5 = 1 | Original bit 2 = IP-output bit 1 = 0

FINAL OUTPUT $IP^{-1}(01001101) = 10110010$