

2. According to the next tables we got the final tables.

Initial bit permutation

6	14	22	30	38	46	54	62
4	12	20	28	36	44	52	60
2	10	18	26	34	42	50	58
0	8	16	24	32	40	48	56
7	15	23	31	39	47	55	63
5	13	21	29	37	45	53	61
3	11	19	27	35	43	51	59
1	9	17	25	33	41	49	57

Initial permutation table in original DES

IP							
58	50	42	34	26	18	10	2
60	52	44	36	28	20	12	4
62	54	46	38	30	22	14	6
64	56	48	40	32	24	16	8
57	49	41	33	25	17	9	1
59	51	43	35	27	19	11	3
61	53	45	37	29	21	13	5
63	55	47	39	31	23	15	7

Final permutation table in original DES

IP ⁻¹							
40	8	48	16	56	24	64	32
39	7	47	15	55	23	63	31
38	6	46	14	54	22	62	30
37	5	45	13	53	21	61	29
36	4	44	12	52	20	60	28
35	3	43	11	51	19	59	27
34	2	42	10	50	18	58	26
33	1	41	9	49	17	57	25

Element value in initial permutation table in Intel x86	Element value in initial permutation table in original DES	Element value in final permutation table in original DES
14	50	8
23	41	44
61	3	27
6	58	40

3. A. 011010

(row) 00 0

(col.) 1101 13

the first DES S-box: 9

the second DES S-box: 0

B. 001111

01 1

0111 7

the first DES S-box: 1

the second DES S-box: 14

C. 110110

10 2

1011 11

the first DES S-box: 7

the second DES S-box: 6

D. 110011

11 3

1001 9

the first DES S-box: 11

the second DES S-box: 6