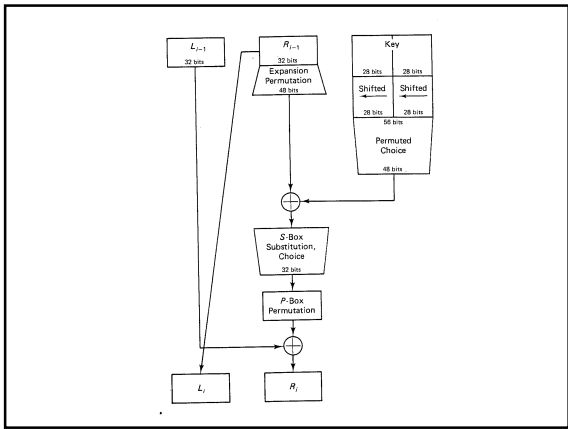


Initial Permutation IP

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

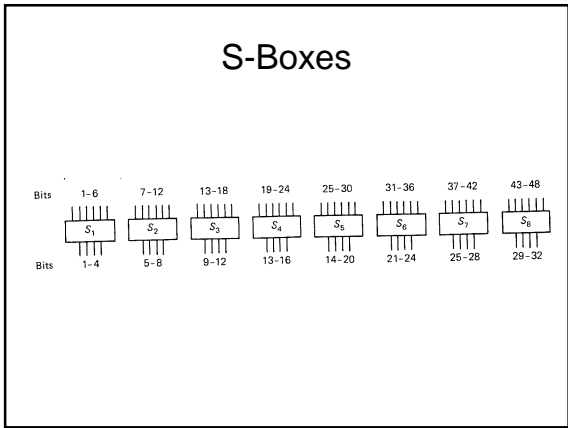
Final Permutation IP⁻¹

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



Expansion Permutation

32	1	2	3	4	5
4	5	6	7	8	9
8	9	10	11	12	13
12	13	14	15	16	17
16	17	18	19	20	21
20	21	22	23	24	25
24	25	26	27	28	29
28	29	30	31	32	1



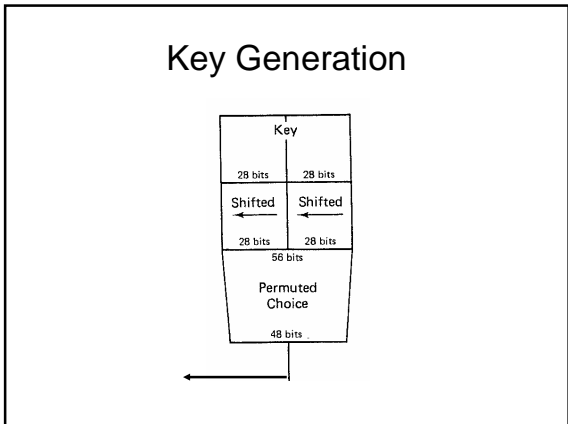
Row	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
S_0	14	4	13	1	2	15	11	8	3	10	6	12	5	9	0	7	
J	0	15	7	4	14	2	13	1	10	6	12	11	9	5	3	8	
J	4	1	14	8	13	6	2	11	15	12	9	7	3	10	5	0	
J	15	12	8	2	4	9	1	7	5	11	3	14	10	0	6	13	
S_1	15	1	8	14	6	11	3	4	9	7	2	13	12	0	5	10	
J	3	13	4	7	15	2	8	14	12	0	1	10	6	9	11	5	
J	0	14	7	11	10	4	13	1	3	8	12	6	9	3	2	15	
J	13	8	10	1	3	15	4	2	11	6	12	12	0	5	14	9	
S_2	10	0	9	14	6	3	13	3	1	13	12	7	11	4	2	8	
J	13	7	0	9	3	4	6	10	2	8	5	14	12	11	15	1	
J	13	8	4	9	8	15	3	0	11	1	2	12	5	10	14	7	
J	1	10	13	0	6	9	8	7	4	15	14	3	11	5	2	12	
S_3	7	13	14	3	0	6	9	10	1	2	8	5	11	12	4	15	
J	15	8	11	5	6	15	0	3	4	7	2	12	1	10	14	9	
J	2	10	6	9	0	12	11	7	13	15	1	3	14	5	2	8	4
J	3	15	0	6	10	1	13	8	9	4	5	11	12	7	2	14	
S_4	2	12	4	1	7	10	11	6	8	5	3	15	13	0	14	9	
J	14	11	2	12	4	7	13	1	5	0	15	10	3	9	8	6	
J	4	2	1	11	10	13	7	8	15	9	12	5	6	3	0	14	
J	11	8	12	7	1	14	2	13	6	15	0	9	10	4	5	3	
S_5	12	1	10	15	9	2	6	8	0	13	3	4	14	7	5	11	
J	10	15	4	2	7	12	9	5	6	1	15	14	0	11	3	8	
J	9	14	15	5	2	8	12	3	7	0	4	10	1	13	11	6	
J	4	3	2	12	9	5	15	10	11	14	1	7	6	0	8	13	
S_6	0	4	11	2	14	15	0	8	13	3	12	9	7	5	10	6	1
J	13	0	11	7	4	9	1	10	14	3	5	12	2	15	8	6	
J	2	1	4	11	13	12	3	7	14	10	15	6	8	0	5	9	2
J	6	11	13	8	1	4	10	7	9	5	0	15	14	2	3	12	
S_7	13	2	8	4	6	15	11	1	10	9	3	14	5	0	12	7	
J	1	15	13	8	10	3	7	4	12	5	6	11	0	14	9	2	
J	2	7	12	4	1	9	12	14	2	0	6	10	13	15	3	5	8
J	2	1	14	7	4	10	8	13	15	12	9	0	3	5	6	11	

P-Box

16	7	20	21
29	12	28	17
1	15	23	26
5	18	31	10
2	8	24	14
32	27	3	9
19	13	30	6
22	11	4	25

Initial Key Permutation PC-1 (64 to 56 bits)

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



Key Shift Schedule

Iteration i	Number of Left Shifts
1	1
2	1
3	2
4	2
5	2
6	2
7	2
8	2
9	1
10	2
11	2
12	2
13	2
14	2
15	2
16	1

Key Permutation PC-2 (Permuted Choice)

14	17	11	24	1	5
3	28	15	6	21	10
23	19	12	4	26	8
16	7	27	20	13	2
41	52	31	37	47	55
30	40	51	45	33	48
44	49	39	56	34	53
46	42	50	36	29	32