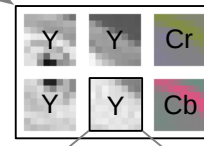
Original image

Dekompozice

$$Y = 0{,}30R + 0{,}59G + 0{,}11B$$
$$Cr = -0{,}17R - 0{,}33G + 0{,}5B$$
$$Cb = +0{,}5R - 0{,}42G - 0{,}08B$$

Macroblock



every pixel – 128

107	103	98	84	45	8	4	1
109	93	114	97	90	66	11	–3
118	90	110	96	93	89	72	33
106	97	99	100	96	97	92	79
98	108	106	97	93	106	94	94
103	103	98	105	98	106	87	109
99	107	109	98	103	93	98	97
84	80	89	103	100	105	92	81

DCT

DC	AC_{01}						AC_{07}
705	109	–41	8	–1	7	14	1
–94	118	–23	1	3	9	6	9	AC_{37}
–70	52	–17	–11	10	1	–4	3
–12	16	24	–29	7	–16	–5	–10
–18	–11	13	–11	–1	4	–11	–7
3	–2	23	–12	2	6	–14	7
–5	–8	10	3	4	9	–1	–5	AC_{77}
2	5	7	–3	–12	4	–4	8

AC_{70}

Quantization table

16	11	10	16	24	40	51	61
12	12	14	19	26	58	60	55
14	13	16	24	40	57	69	56
14	17	22	29	51	87	80	62
18	22	37	56	68	109	103	77
24	35	55	64	81	104	113	92
49	64	78	87	103	121	120	101
72	92	95	98	112	100	103	99

The coefficients of quantization table, here for 50 % quality, they can be multiplied by constant α, which gives a lossy ratio.

Quality Q:
$1 \le Q \le 50$, $\alpha = 50 / Q$,
$51 \le Q \le 100$, $\alpha = 2 - Q / 50$

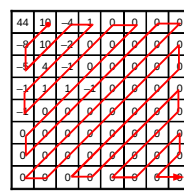
Quantization

705 / 16 = 44,
109 / 11 = 10, …

44	10	–4	1	0	0	0	0
–8	10	–2	0	0	0	0	0
–5	4	–1	0	0	0	0	0
–1	1	1	–1	0	0	0	0
–1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

Image block is linear combination of patterns given by DCT.

Linearization



44, 10, –8, –5, 10, –4, 1, –2, 4, –1, –1, 1, –1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, –1, 0, 0, …

Run-length encoding

(zeros / categ. / value)

44; (0/4/10), (0/4/–8), (0/3/–5), (0/4/10), (0/3/–4), (0/1/1), (0/2/–2), (0/3/4), (0/1/–1), (0/1/–1), (0/1/1), (0/1/–1), (5/1/1), (5/1/–1), **EOB**

Huffman coding

(only AC coefficients)

1011 1100 **1011** 0111 **100** 010 **1011** 1100 **100** 011 **00** 1 **01** 01 **100** 100 **0000** 0000 100 **0** 1111010 1 1111010 0 **1010**

bit stream