

function	add	F1	F2	F3	cd	br	br_Add
fetch	0	RIR	INCPC	NOP	U	MAP	0
nop	1	NOP	NOP	NOP	U	JMP	FETCH
BIPUSH	2	CLROP3-1	INC4SP	MTOPO	U	JMP	NEXT
	3		INCPC	OPTMSP	U	JMP	FETCH
GOTO	4			SELFADDPC	U	JMP	FETCH
IADD	5	MSPTDR	DEC4SP		U	JMP	NEXT
	6	MTAC			U	JMP	NEXT
	7			ACSDR	U	JMP	NEXT
	8		TMPTMSP		U	JMP	FETCH
IFEQ	9	MSPTDR	DEC4SP		U	JMP	NEXT
	10				ADR	JMP	
	11			SELFADDPC	U	JMP	NEXT
	12		INCPC		U	JMP	NEXT
	13		INCPC		U	JMP	FETCH
IFLT	14	MSPTDR	DEC4SP		U	JMP	NEXT
	15				SD	JMP	
	16		INCPC		U	JMP	NEXT
	17		INCPC		U	JMP	FETCH
	18			SELFADDPC	U	JMP	FETCH
If_icmpeq	19	MSPTDR	DEC4SP		U	JMP	NEXT
	20	MSPTAC	DEC4SP		U	JMP	NEXT
	21			ACMDR	U	JMP	NEXT
	22			TMPTAC	U	JMP	NEXT
	23				AAC	JMP	
	24			SELFADDPC	U	JMP	FETCH
	25		INCPC		U	JMP	NEXT
	26		INCPC		U	JMP	FETCH
linc	27	CLROP3-1		MTOPO	U	JMP	NEXT
	28	OPTLV	INCPC		U	JMP	NEXT
	29	MLVTDR			U	JMP	NEXT
	30	CLROP3-1	INCPC	MTOPO	U	JMP	NEXT
	31			OPTAC	U	JMP	NEXT
	32			ACSDR	U	JMP	NEXT
	33		TMPTMLV		U	JMP	FETCH
ILOAD	34	CLROP3-1		MTOPO	U	JMP	NEXT
	35	OPTLV	INCPC		U	JMP	NEXT
	36	MLVTDR	INC4SP		U	JMP	NEXT
	37			DRTM	U	JMP	FETCH
IStore	38	MSPTDR	DEC4SP		U	JMP	NEXT
	39	CLROP3-1			U	JMP	NEXT
	40			MTOPO	U	JMP	NEXT
	41	OPTLV	INCPC		U	JMP	NEXT
	42		DRTMLV		U	JMP	FETCH
ISUB	43	MSPTDR	DEC4SP		U	JMP	NEXT
	44	MSPTAC			U	JMP	NEXT
	45			ACMDR	U	JMP	NEXT

	46	TMPTMSP		U	JMP	FETCH
DUP	47	MSPTDR	INC4SP	U	JMP	NEXT
	48	DRTM		U	JMP	FETCH
LAND	49	MSPTDR	DEC4SP	U	JMP	NEXT
	50	MSPTAC		U	JMP	NEXT
	51	AND		U	JMP	NEXT
	52	TMPTMSP		U	JMP	FETCH
swap	53	MSPTDR	DEC4SP	U	JMP	NEXT
	54	MSPTAC		U	JMP	NEXT
	55		INC4SP DRTM	U	JMP	NEXT
	56	ACTTMP		U	JMP	NEXT
	57	TMPTMSP		U	JMP	FETCH
wide	58	FLAGON		U	JMP	FETCH
IOR	59	MSPTDR	DEC4SP	U	JMP	NEXT
	60	MSPTAC		U	JMP	NEXT
	61	OR		U	JMP	NEXT
	62	TMPTMSP		U	JMP	FETCH
LDC_W	63		MPCTCPP	U	JMP	NEXT
	64		INC4SP MCPPTDR	U	JMP	NEXT
	65	DRTM		U	JMP	FETCH
POP	66	DEC4SP		U	JMP	FETCH
LDASP	67	MSPTSP	INCPC	U	JMP	NEXT
	68		INCPC	U	JMP	NEXT
	69		INCPC	U	JMP	NEXT
	70		INCPC	U	JMP	FETCH
ENVOKE	71	PCTT1	LVTT2	U	JMP	NEXT
	72		MPCTPC	U	JMP	NEXT
	73	CLROP3-2	INCPC MPCTOP1-0	U	JMP	NEXT
	74		OPTAC	U	JMP	NEXT
	75		SPTAC 4ACTTMP	U	JMP	NEXT
	76		TMPTDR	U	JMP	NEXT
	77		ACMDR	U	JMP	NEXT
	78		INCPC TMPTLV	U	JMP	NEXT
	79		MPCTOP1-0	U	JMP	NEXT
	80		INCPC OPTAC	U	JMP	NEXT
	81		SPTAC 4ACTTMP	U	JMP	NEXT
	82		TMPTDR	U	JMP	NEXT
	83		INCPC ACSDR	U	JMP	NEXT
	84		TMPTSP	U	JMP	NEXT
	85		DEC4SP T1TMSP	U	JMP	NEXT
	86		T2TMSP	U	JMP	FETCH
RETURN	87	LVTT2		U	JMP	NEXT
	88	MSPTLV		U	JMP	NEXT
	89		MSPTPC	U	JMP	NEXT
	90	T2TSP		U	JMP	FETCH

br_add	f1[22:19]	f2[18:15]	f3[14:11]	cd[10:9]	br[8:7]	add[6:0]
0	01	01	00	00	11	0
0	00	00	00	00	00	0
3	100	10	01	00	00	11
0	00	01	10	00	00	0
0	00	00	11	00	00	0
6	10	11	00	00	00	110
7	00	00	00	00	00	111
8	00	00	101	00	00	1000
0	00	100	00	00	00	0
10	10	11	00	00	00	1010
12	00	00	00	11	00	1100
12	00	00	11	00	00	1100
13	00	01	00	00	00	1101
0	00	01	00	00	00	0
15	10	11	00	00	00	1111
18	00	00	00	01	00	10010
17	00	01	00	00	00	10001
0	00	01	00	00	00	0
0	00	00	11	00	00	0
20	10	11	00	00	00	10100
21	11	11	00	00	00	10101
22	00	00	100	00	00	10110
23	00	00	1000	00	00	10111
25	00	00	00	10	00	11001
0	00	00	11	00	00	0
26	00	01	00	00	00	11010
0	00	01	00	00	00	0
28	100	00	01	00	00	11100
29	101	01	00	00	00	11101
30	1001	00	00	00	00	11110
31	100	01	01	00	00	11111
32	00	00	1001	00	00	100000
33	00	00	101	00	00	100001
0	00	101	00	00	00	0
35	100	00	01	00	00	100011
36	101	01	00	00	00	100100
37	1001	10	00	00	00	100101
0	00	00	111	00	00	0
39	10	11	00	00	00	100111
40	100	00	00	00	00	101000
41	00	00	01	00	00	101001
42	101	01	00	00	00	101010
0	00	1000	00	00	00	0
44	10	11	00	00	00	101100
45	11	00	00	00	00	101101
46	00	00	100	00	00	101110

0	00	100	00	00	00	0
48	10	10	00	00	00	110000
0	00	00	111	00	00	0
50	10	11	00	00	00	110010
51	11	00	00	00	00	110011
52	111	00	00	00	00	110100
0	00	100	00	00	00	0
54	10	11	00	00	00	110110
55	11	00	00	00	00	110111
56	00	10	111	00	00	111000
57	00	111	00	00	00	111001
0	00	100	00	00	00	0
0	1011	00	00	00	00	0
60	10	11	00	00	00	111100
61	11	00	00	00	00	111101
62	1000	00	00	00	00	111110
0	00	100	00	00	00	0
64	00	00	1011	00	00	1000000
65	00	10	1010	00	00	1000001
0	00	00	111	00	00	0
0	00	11	00	00	00	0
68	1100	01	00	00	00	1000100
69	00	01	00	00	00	1000101
70	00	01	00	00	00	1000110
0	00	01	00	00	00	0
72	110	1010	00	00	00	1001000
73	00	1001	00	00	00	1001001
74	1101	01	1100	00	00	1001010
75	00	00	1001	00	00	1001011
76	00	1011	1101	00	00	1001100
77	00	1110	00	00	00	1001101
78	00	00	100	00	00	1001110
79	00	01	1110	00	00	1001111
80	00	00	1100	00	00	1010000
81	00	01	1001	00	00	1010001
82	00	1011	1101	00	00	1010010
83	00	1110	00	00	00	1010011
84	00	01	101	00	00	1010100
85	00	1100	00	00	00	1010101
86	00	11	1111	00	00	1010110
0	00	1101	00	00	00	0
88	00	1010	00	00	00	1011000
89	1111	00	00	00	00	1011001
90	00	00	110	00	00	1011010
0	00	1111	00	00	00	0

verilog codes	
array[0] = 23'b00010001000000110000000;	//fetch
array[1] = 23'b00000000000000000000000;	//nop
array[2] = 23'b010000100001000000000011;	//BIPUSH
array[3] = 23'b00000001001000000000000;	//
array[4] = 23'b00000000001100000000000;	//GOTO
array[5] = 23'b00100011000000000000110;	//IADD
array[6] = 23'b00000000000000000000111;	//
array[7] = 23'b00000000010100000001000;	//
array[8] = 23'b00000100000000000000000;	//
array[9] = 23'b00100011000000000001010;	//IFEQ
array[10] = 23'b00000000000011000001100;	//
array[11] = 23'b00000000001100000001100;	//
array[12] = 23'b00000001000000000001101;	//
array[13] = 23'b00000001000000000000000;	//
array[14] = 23'b00100011000000000001111;	//IFLT
array[15] = 23'b00000000000001000010010;	//
array[16] = 23'b00000001000000000010001;	//
array[17] = 23'b00000001000000000000000;	//
array[18] = 23'b00000000011000000000000;	//
array[19] = 23'b00100011000000000010100;	//If_icmpeq
array[20] = 23'b00110011000000000010101;	//
array[21] = 23'b00000000010000000010110;	//
array[22] = 23'b00000000100000000010111;	//
array[23] = 23'b00000000000010000011001;	//
array[24] = 23'b00000000011000000000000;	//
array[25] = 23'b00000001000000000011010;	//
array[26] = 23'b00000001000000000000000;	//
array[27] = 23'b0100000000100000011100;	//linc
array[28] = 23'b01010001000000000011101;	//
array[29] = 23'b10010000000000000011110;	//
array[30] = 23'b01000001000100000011111;	//
array[31] = 23'b000000000100100000100000;	//
array[32] = 23'b00000000010100000100001;	//
array[33] = 23'b000000101000000000000000;	//
array[34] = 23'b0100000000100000100011;	//ILOAD
array[35] = 23'b010100010000000000100100;	//
array[36] = 23'b100100100000000000100101;	//
array[37] = 23'b00000000011100000000000;	//
array[38] = 23'b00100011000000000100111;	//IStore
array[39] = 23'b01000000000000000101000;	//
array[40] = 23'b00000000000100000101001;	//
array[41] = 23'b010100010000000000101010;	//
array[42] = 23'b000001000000000000000000;	//
array[43] = 23'b00100011000000000101100;	//ISUB
array[44] = 23'b001100000000000000101101;	//
array[45] = 23'b000000000100000000101110;	//

array[46] = 23'b000001000000000000000000;	//
array[47] = 23'b00100010000000000110000;	//DUP
array[48] = 23'b000000000111000000000000;	//
array[49] = 23'b00100011000000000110010;	//LAND
array[50] = 23'b00110000000000000110011;	//
array[51] = 23'b01110000000000000110100;	//
array[52] = 23'b000001000000000000000000;	//
array[53] = 23'b00100011000000000110110;	//swap
array[54] = 23'b00110000000000000110111;	//
array[55] = 23'b00000010011100000111000;	//
array[56] = 23'b00000111000000000111001;	//
array[57] = 23'b000001000000000000000000;	//
array[58] = 23'b101100000000000000000000;	//wide
array[59] = 23'b00100011000000000111100;	//IOR
array[60] = 23'b00110000000000000111101;	//
array[61] = 23'b10000000000000000111110;	//
array[62] = 23'b000001000000000000000000;	//
array[63] = 23'b00000000101100001000000;	//LDC_W
array[64] = 23'b00000010101000001000001;	//
array[65] = 23'b000000000111000000000000;	//
array[66] = 23'b000000011000000000000000;	//POP
array[67] = 23'b11000001000000001000100;	//LDASP
array[68] = 23'b00000001000000001000101;	//
array[69] = 23'b00000001000000001000110;	//
array[70] = 23'b000000010000000000000000;	//
array[71] = 23'b01101010000000001001000;	//ENVOKE
array[72] = 23'b000001001000000001001001;	//
array[73] = 23'b11010001110000001001010;	//
array[74] = 23'b00000000100100001001011;	//
array[75] = 23'b000001011110100001001100;	//
array[76] = 23'b000001110000000001001101;	//
array[77] = 23'b00000000010000001001110;	//
array[78] = 23'b000000011111000001001111;	//
array[79] = 23'b00000000110000001010000;	//
array[80] = 23'b00000001100100001010001;	//
array[81] = 23'b000001011110100001010010;	//
array[82] = 23'b000001110000000001010011;	//
array[83] = 23'b00000001010100001010100;	//
array[84] = 23'b000001100000000001010101;	//
array[85] = 23'b000000011111100001010110;	//
array[86] = 23'b000001101000000000000000;	//
array[87] = 23'b000001010000000001011000;	//RETURN
array[88] = 23'b111100000000000001011001;	//
array[89] = 23'b00000000011000001011010;	//
array[90] = 23'b000001111000000000000000;	//

