



INSTRUCTION SET ARCH.

xxxx xxaa (common format)

aa=00 : 8bit immediate
aa=01 : register(0-255) direct
aa=10 : register(0-255) indirect
aa=11 : 16bit immediate

0ccc ddaa JMP

ccc=000 : ALWAYS
ccc=001 : EXTERNAL
ccc=010 : Jump if ZERO
ccc=011 : Jump if not ZERO
ccc=100 : Jump if CARRY
ccc=101 : Jump if not CARRY
ccc=110 : Jump if MINUS
ccc=111 : Jump if not MINUS

dd=00 : wait request
dd=01 : absolute jump
dd=10 : relative jump (forward)
dd=11 : relative jump (backward)

11-0 00aa STM 10-0 00aa AND
11-0 01aa OUT 10-0 01aa OR
11M 10aa STW 10-0 10aa XNOR
11M 11aa LDV 10-0 11aa INV
11-1 00aa LD 10-1 00aa HALT
11P 01-- IN 10-1 01aa LD
11-1 10-- LPC 10-1 10aa ADD
11-1 11-- SFT 10-1 11aa SUB

M=1 EXTENDED MEMORY ACCESS
P=1 EXTENDED PORT ACCESS

SXGA VIDEO TIMING CHART

H-SYNC (H9..H0) TIMING CHART
clock 27,000MHz
19+32+32+256+1=340clock

LOAD	10 1010 1101	
	10 1010 1110	FRONT-PORCH
	10 1010 1111	19clock
	10 1011 1111	
	10 1100 0000	
	10 1100 0001	HS
	10 1100 0010	64clock
	10 1100 0011	(79.412KHz)
	10 1101 1111	
	10 1110 0000	
	10 1110 0001	BACK-PORCH
	10 1110 0010	64clock
	10 1111 1111	
	11 0000 0000	
	11 0000 0001	PICTURE AVAILABLE
	11 0000 0010	256clock
	11 1111 1111	
	00 0000 0000	LOAD REQUEST
	0100 0000 00	
	0100 0000 01	FRONT-PORCH
	0100 0000 10	2*4clock
	0100 0000 11	VS 2*4clock
	0100 0001 00	
	0100 0001 01	BACK-PORCH
	0100 0001 10	4*4clock
	0100 0001 11	
	0100 0100 00	CLEAR

V-SYNC (V9..V0) TIMING CHART
1clock=27,000MHz/340=79.411KHz
(256+2+2+4)*4=1056clock

CLEAR 00 0000 0000
00 0000 0001
00 0000 0010
00 0000 0011 PICTURE AVAILABLE
00 0000 0111 256*4clock
0100 0000 00 FRONT-PORCH
0100 0000 01 2*4clock
0100 0000 10 VS 2*4clock
0100 0000 11 (75.199Hz)
0100 0001 00
0100 0001 01 BACK-PORCH
0100 0001 10 4*4clock
0100 0001 11
0100 0100 00 CLEAR

HISTORY

(01.01) 2017-01-12
: For details see my web.
(1.01.01) 2017-05-22
(1.02.01) 2017-05-25 Fixed RUN LED wiring.
(1.03.01) 2017-05-26 Fixed "U45 ABC"; "IR14 12 13"