義隆電子股份有限公司
ELAN MICROELECTRONICS CORP.

ICE911
User manual

FOR

EM78911

EM78910A

EM78P911A

Version 2.0

ELAN MICROELECTRONICS CORP.
No. 12, Innovation 1st RD., Science-Based Industrial Park
Hsin Chu City, Taiwan, R.O.C.
TEL: (03) 5639977
FAX: (03) 5780617

EMC IN CIRCUIT EMULATOR

Difference between 78911 and 78811

ITEM	78811	78911	P.S.
1. IDLE mode wakeup	P9 ,RTIME => SLEP=> WDT => TCC	Every wakeup source is independent . Don't need sleep again.	
2. CW function	No	Yes	
3. P70 interrupt edge selection	No	Yes (at CONT register bit7)	
4. Counter1 pre scaler	1:1, 1:2, 1:4, 1:8	1:1, 1:4, 1:8	
5. CAS interrupt	No	Yes	
6. Low batter detection range	One 3.6~3.8	Two ,IOCA bit0 3.0~3.2, and 3.6~3.8	
7. PORT5 bit4~bit7	LCD segment	LCD segment or IO port IOC5 bit0	
8. P70~P73 interrupt at IDLE mode	No function	Wake up and interrupt	
9. PORT9 wake up at IDLE mode	Level	edge	
10. Clock	3.68MHz	3.58MHz	

1 Introduction

E8 ICE is intended to provide the product development engineer a powerful microcontroller design tool. The E8 ICE operates on PC compatible 386 and above machines

2 System Requirement

1. EGA and above MONITOR.
2. 1M RAM.
3. and above IBM PC compatible machines.
4. In circuit emulator (ICE).
5. PC host ICE control software.
6. 16V 500mA power adapter.
7. ICE software setup by soft disk: extracted WICE20.ZIP file and run setup.exe.
8. You can get User manual or other software at EMC internet . www.emc.com.tw
   Customer => download => micro controller (8-bit) =>ICE software

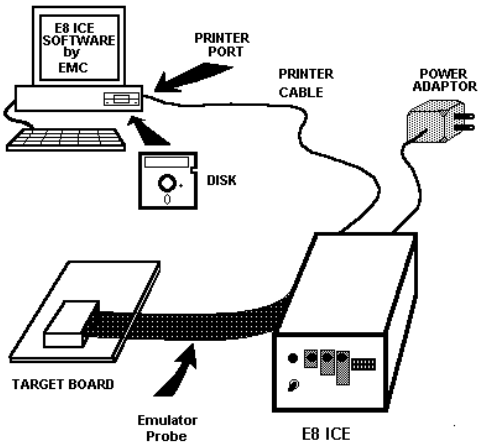

Figure 1.1 ICE System Configuration

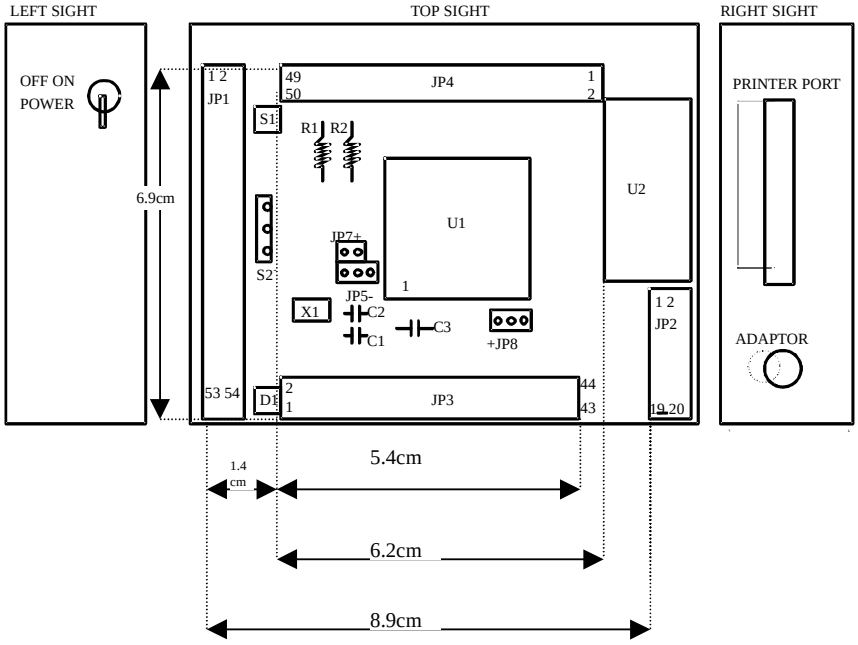

Figure 1.2 ICE Outline

3 Dscription

1. Power on the E8 ICE before executing the control software, or an error message due to lack of hardware will appear.
2. E8 - ICE uses the printer port to communicate with host PC. If a user wants to use the printer, it is recommended to install another printer port.
3. Power on switch located on the left side of ICE box. By switching left or right side to turn off or turn on the ICE power.
4. Printer port and the adapter locate on the right side. The ICE connects to personal computer by printer port. The adapter connects to the power. Besure turn power off of ICE before plug in the adapter for avoiding over current which may be burn the chip off.
5. On the top sight, we have four connections and one EM78911 romless chip and some switches. The JP1 and the JP2 connect to the second layer of ICE for the code instruction accessing. The JP3 and the JP4 is more important for ICE user. They are the EM78911 control signals and I/O ports. ICE user can connect these connections to user's application board. The connections are list in Figure 1.3.
6. The U1 is EM78911 romless chip. The U2 is a 32K bytes ROM for on board testing one day by piggyback. If user have developed application code by this ICE. User can use PIGGYBACK (user can buy from EMC) to connect to user's application board with 32 bytes EPROM (27c256). To verify user's program.
7. The S1 is a reset button (for PIGGYBACK). It is used for resetting the target board. The D1 is a LED that indicate power is on or off. X1 is 32.768k crystal C1and C2 is capacitor 27p. C3 is PLL capacitor. (0.01u .. 0.044u). S2 is a switch for testing .
8. ICE setup. (1)S2 =>32.768K clock (2)X1=> 32.768k crystal (3) J7 open (4)J5 connect VDD or GND (5)J8=>VDD
9. PIGGYBACK setup. (1)S1=> a switch (2)S2=> 32.768k clock (3)J7 short (4)J5 connect to VDD or GND (5)J8 =>GND (6)R1=> 3.7K (7)U2=> 32k byte EPROM (27c256).

   (User can use file “*.MIX” which generate by WICE for masking EPROM . The *.mix file is a binary file and addressing from zero.)

   JP5 is a /POVD option. User can connect to VDD (disable) or GND (enable).

10. The romless chip's 160 pin is the option of main clock (MCLK). The main clock is 3.58MHz when this pin open. And the main clock is 1.79MHz when this pin connect to VDD (159 pin). User can scope the frequency at JP1 pin13.

11. RUN WICE software to enter ICE environment.

	pin	Name	pin	Name	pin	Name	pin	name	pin	Name
JP3	1	GND	11	SEG2	21	SEG12	31	SEG22	41	SEG32
	2	DTMF	12	SEG3	22	SEG13	32	SEG23	42	SEG33
	3	R-TIME	13	SEG4	23	SEG14	33	SEG24	43	VDD
	4	DET1	14	SEG5	24	SEG15	34	SEG25	44	VDD
	5	RING	15	SEG6	25	SEG16	35	SEG26		
	6	TIP	16	SEG7	26	SEG17	36	SEG27		
	7	CWRING	17	SEG8	27	SEG18	37	SEG28		
	8	CWTIP	18	SEG9	28	SEG19	38	SEG29		
	9	SEG0	19	SEG10	29	SEG20	39	SEG30		
	10	SEG1	20	SEG11	30	SEG21	40	SEG31		
JP4	1	SEG34	11	COM8/PORT60	21	PORT72	31	SEG40/PORT54	41	SEG50/PORT86
	2	SEG35	12	COM9/PORT61	22	PORT73	32	SEG41/PORT55	42	SEG51/PORT87
	3	COM0	13	COM10/PORT62	23	PORT74	33	SEG42/PORT56	43	SEG52/PORT90
	4	COM1	14	COM11/PORT63	24	PORT75	34	SEG43/PORT57	44	SEG53/PORT91
	5	COM2	15	COM12/PORT64	25	PORT76	35	SEG44/PORT80	45	SEG54/PORT92
	6	COM3	16	COM13/PORT65	26	PORT77	36	SEG45/PORT81	46	SEG55/PORT93
	7	COM4	17	COM14/PORT66	27	SEG36	37	SEG46/PORT82	47	SEG56/PORT94
	8	COM5	18	COM15/PORT67	28	SEG37	38	SEG47/PORT83	48	SEG57/PORT95
	9	COM6	19	PORT70	29	SEG38	39	SEG48/PORT84	49	SEG58/PORT96
	10	COM7	20	PORT71	30	SEG39	40	SEG49/PORT85	50	SEG59/PORT97

Figure 1.3 ICE Connection