SONIX 8-BIT MCU MP-EZ Writer

User's Manual

General Release Specification

MANUAL REVISION HISTORY

Version	Date	Description
0.1	Aug. 2004	First Issue
1.0	Nov. 2004	ADD SN8P2711, SN8P2714, SN8P2715, SN8P27142, SN8P27143, SN8P26042 PROGRAMING PIN define.
1.1	May. 2005	1.ADD SN8P2612, SN8P2613, SN8P2624 Update firmware revision history 2.Modify start LED information. 3.New version description.

HARDWARE REVISION HISTORY

Version	Date	Description
1.0	Aug. 2004	First Issue

EEPROM DOWNLOAD SOFTWARE REVISION HISTORY

Version	Date	Description
1.0	Aug. 2004	First Issue, integrated with SN8IDE and M2IDE.

FIRMWARE REVISION HISTORY

Version	Date	Description
MP2X V1.1	Aug. 2004	1.ADD Print Cable check function. 2.Show Chip Name One word programming time:100us
MP2X V1.2	Aug. 2004	1.Modify power on/off timing 2.Show checksum and version One word programming time:100us
MP2X V1.3	Aug. 2004	1.Modify rolling code problem. 2.ADD FUN8 can check code version. One word programming time:100us
MP2X V1.4	Jan. 2005	ADD support SN8P2711.
MP2X V1.5	Mar. 2005	1.ADD 2612 2613 IHRC check function. 2.Modify 2711 check method. One word programming time:400us
MP2X V1.6	Apr. 2005	1.rolling code problem modify.(highest word is low address) 2.new programming method. 3.Ignore VPP voltage checking during programming
MP2X V1.6A	May. 2005	Internal test version.
MP2X V1.6B	May. 2005	Fine tune the program flow which MCU built-in internal 16MHz RC oscillator.
MP2X V1.6C	Jul. 2005	Add VPP to GND short protection during OTP programming.
MP2X V1.6D	Jul. 2005	V1.6C Bug fixed: The writer maybe deadlock when OTP programming error.

MP1X V1.0	Nov. 2004	First Issue.
MP1X V1.1	Apr. 2005	ADD when in start moment, LED will show EEPROM Checksum.
MP1X V1.2	May. 2005	Modify one word programming times to 400us.
MP1X V1.2A	May. 2005	Modify power on/off problem.
MP1X V1.2B	May. 2005	Modify rolling code Bug (choice highest word is low address) and version show way.
MP1X V1.3	May. 2005	Fine tune new programming flow.
MP1X V1.3A	Jul. 2005	Add VPP voltage detection. Note: V1.3A or later version must adjust the VPP voltage to 12.3V for VPP detection and connect a serial 75-ohm resister to VPP. Please refer to the technical notice TN022 for detailed information.
MP1X V1.3B	Aug. 2005	Internal test version
MP1X V1.3C	Aug.2005	Modify some problem of internal test version V1.3B.

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1 MP EZ WRITER INTRODUCTION

About SONiX 8-BIT MCU MP EZ Writer

SONiX Easy Writer programming is controlled by ICE and needn't update firmware, but it need to connect with PC and ICE. So that Easy Writer doesn't agree with large produced. In order to provide for a stable and large producing writer, we provide MP EZ Writer.

FUNCTION INTRODUCTION

- MP EZ Writer modify from EZ Writer. It's controlled by SN8P2708A MCU at base control board.
- Including four digit seven-segment LED display, which can show operation mode、Checksum、Error Message、Rolling code Value.
- Including EEPROM, which can stored programming file (*.SN8).
- There are two kinds of firmware, please refer to the appendix A. In order to avoided wrong programming file (*.SN8) to cause programming fail, after MP EZ Writer starting, it will check the programming file (*.SN8) in EERPOM. If the programming file (*.SN8) is different with MCU type, you will hear warning sound from buzzer. If the programming file (*.SN8) is the same with MCU type, you can press the execution Key, and then the seven-segment LED display will show firmware name and version.
- Supporting nine types operation mode : **Auto1**、**Blank Check**、**Program**、**Verify**、**Read OTP**、**Read EEPROM**、**Auto2**、**Show Rolling Code** (Only show lowest word of rolling code) and display firmware name and version.
- Supporting Rolling code, this function can be enabled when loading (*.SN8) file to EEPROM.
- Programming transition board：Support ICE transition board(alias name: V3 transition board) and Writer transition board(alias name: MP transition board). After using Writer transition board, you can put OTP MCU on 48pins text tool.
- MP EZ Writer use DC 7.5V 2.0A power adaptor, which is the same as ICE power adaptor.
- In TEST MODE, you can measure or adjust VPP voltage.
- When MP EZ Writer starting, it will show firmware version and Checksum. For example:10-XXXX, 10 means 1.0 version, XXXX means Checksum.
- After showing with firmware version and checksum, it will show programming CHIP NAME and checksum.
- Before press the execution Key, in order to avoid the control single from MCU on base control board and Printer Port interference with each other, it will detect whether the Printer Cable had removed. If the Printer Cable not removed, you will hear warning sound from buzzer.

Hardware introduction

- MP EZ WRITER as show below: contains base control board、programming board and programming transition board. Programming board contains 48-pins TEXT TOOL、Writer transition board socket (JP1,JP3) and 20 pin socket (JP2).Base control board provide with EEPROM、seven-segment LED display、LED light、execution Key、Mode Key and Reset Key.

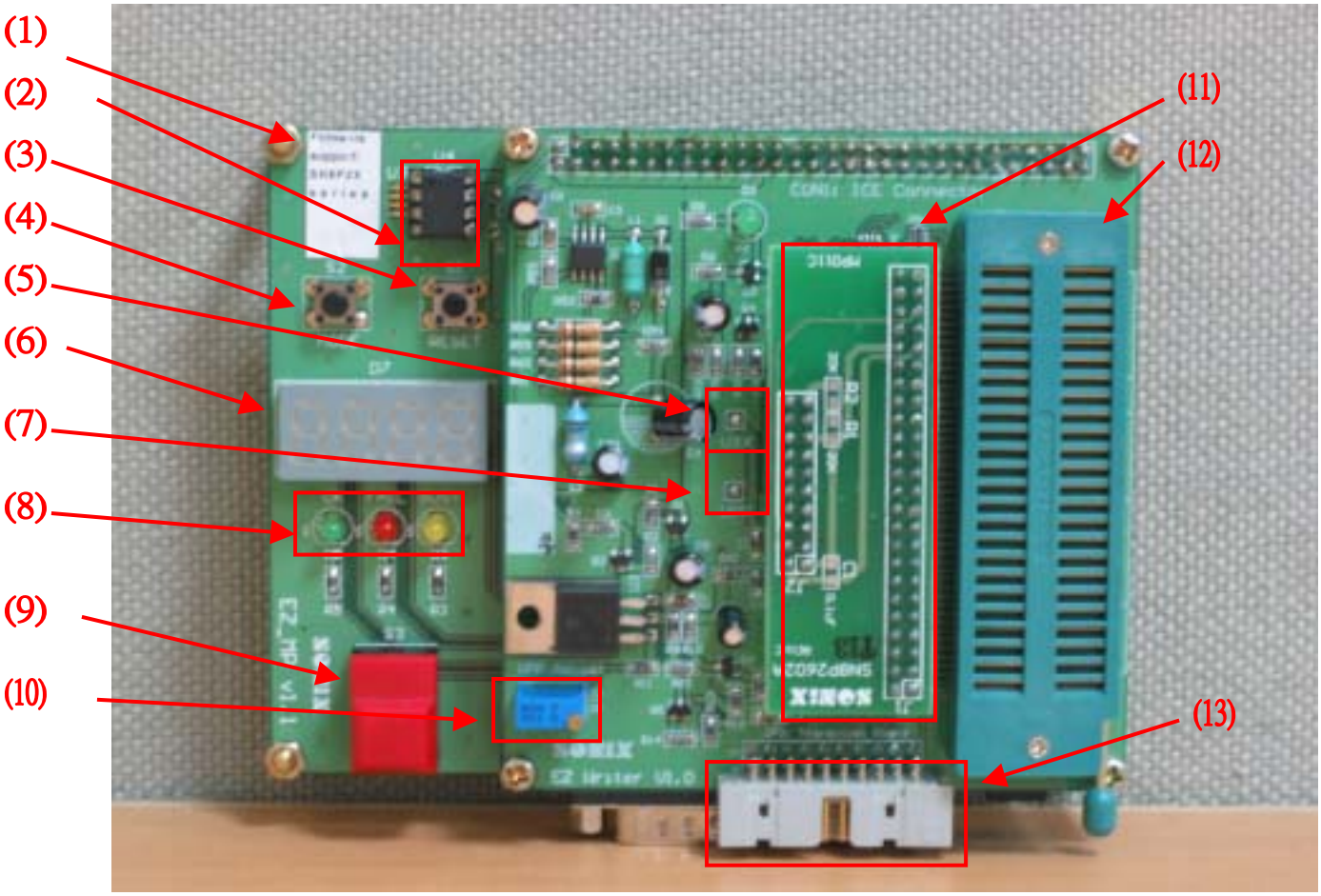


Figure1.MP EZ WRITER

No.	Feature	Description	Remark
(1)	Label	Indicate firmware-supporting chip.	
(2)	U4	EEPROM 24LC256.	
(3)	S1	Reset Key.	
(4)	S2	Mode Select Key.	
(5)	VXX	VXX voltage measurement point	The default value of VXX is 5V
(6)	D7	Four digits 7 Segment Display.	
(7)	VPP	VPP Voltage measurement point	The default value of VPP is 12.3V
(8)	D3~D5	Green is OK. Yellow is Busy. Red is Fail.	
(9)	S3	Execution Key or Disable Alarm.	
(10)	VR1	Adjust VPP Voltage	
(11)	JP1 & JP3	Writer transition board socket.	
(12)	Text Tool	OTP programming socket. MP transition board is necessary.	
(13)	JP2	20 pin socket.	

Accessory introduction

- Printer Cable.
- DC 7.5V 2.0A power adaptor.
- Connect with ICE transition board:20 pins cable.

Figure2. 20 pins cable

- Writer transition board: When programming, different MCU type should mapping to correct Writer transition board, and then put OTP MCU on EZ Writer 48pins text tool.
- **NOTE: When IC PIN number greater then 48 PIN, Writer transition board connect with EZ Writer by 20 pins cable, and then put OTP MCU on Writer transition board socket.**

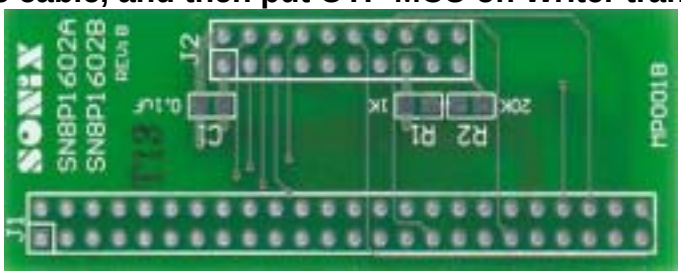


Figure3-1. Writer transition board (IC PIN number smaller then 48 PIN)

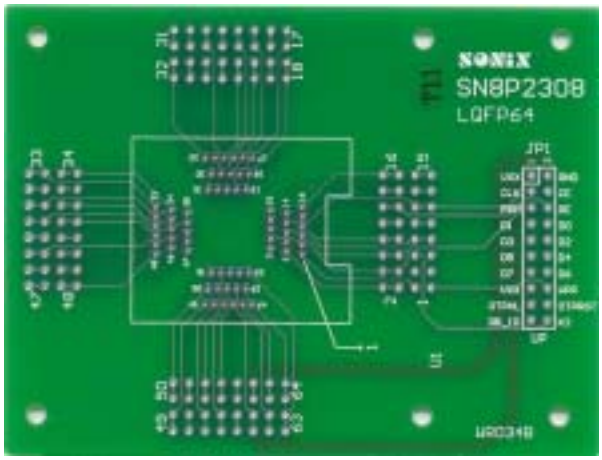


Figure3-2. Writer transition board (IC PIN number greater then 48 PIN)

- ICE transition board：When programming, different MCU type should mapping to correct ICE transition board. Step1:Connect ICE transition board and EZ Writer with 20 pins cable. Step2: Put OTP MCU on ICE transition board text tool.

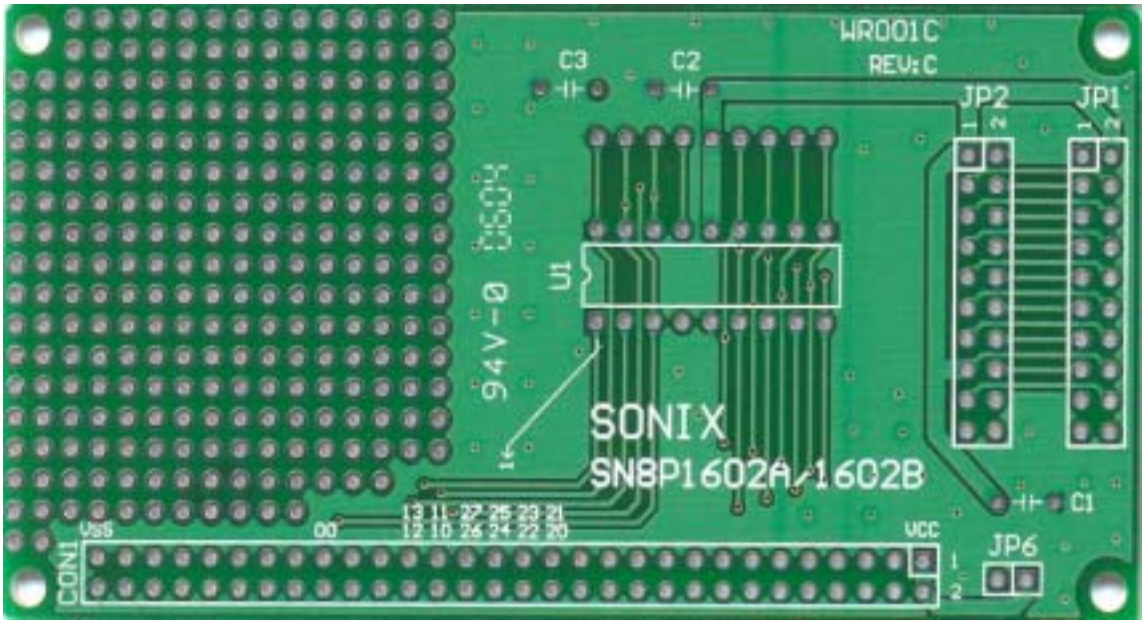


Figure4.ICE transition board

Software and Hardware install

Software install

1. MPEZ_WtVxx.exe (

) used to download programming file (*.SN8) to MP EZ Writer EEPROM. MPEZ_WtVxx.exe build in SN8IDE (support S8KD-2 ICE, SN8P1X family MCU) and M2IDE (support SN8ICE 2K, SN8P2X family MCU).

2. Please download SN8IDE and M2IDE from SONiX website. Detailed operation instruction, please refer to Chapter 3.

Hardware install

1. Connect DC 7.5V 2.0A power adaptor. (MP EZ WRITER and SONiX ICE use the same power adaptor.)
2. Connect PC and MP EZ Writer with Printer Cable, and then used MPEZ_WtVxx.exe download programming file (*.SN8) to MP EZ Writer EEPROM.

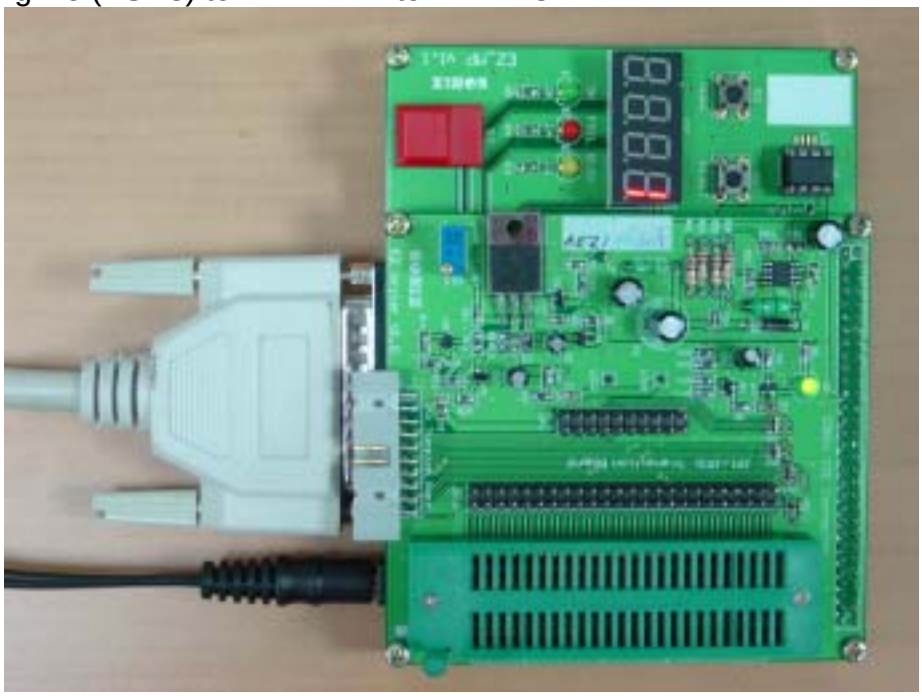


Figure5.download (*.SN8) to EEPROM.

If first connect Printer Cable and then connect DC 7.5V 2.0A power adaptor, the seven-segment LED display will show “PC onLInE”. You should do as below: First step, connect DC 7.5V 2.0A power adaptor and then seven-segment LED display will show “- - - -“or Chip name. Second step, connect Print Cable and then download programming file (*.SN8) to MP EZ Writer EEPROM.

3. Remove Printer Cable. If you don't remove Printer Cable and then press the execution Key, then the seven-segment LED display will show “PC onLInE” and you will hear warning sound from buzzer.
4. Connect ICE transition board or Writer transition board:

■ **ICE transition board or Writer transition board (IC PIN number greater then 48 PIN) connect with MP EZ Writer.**

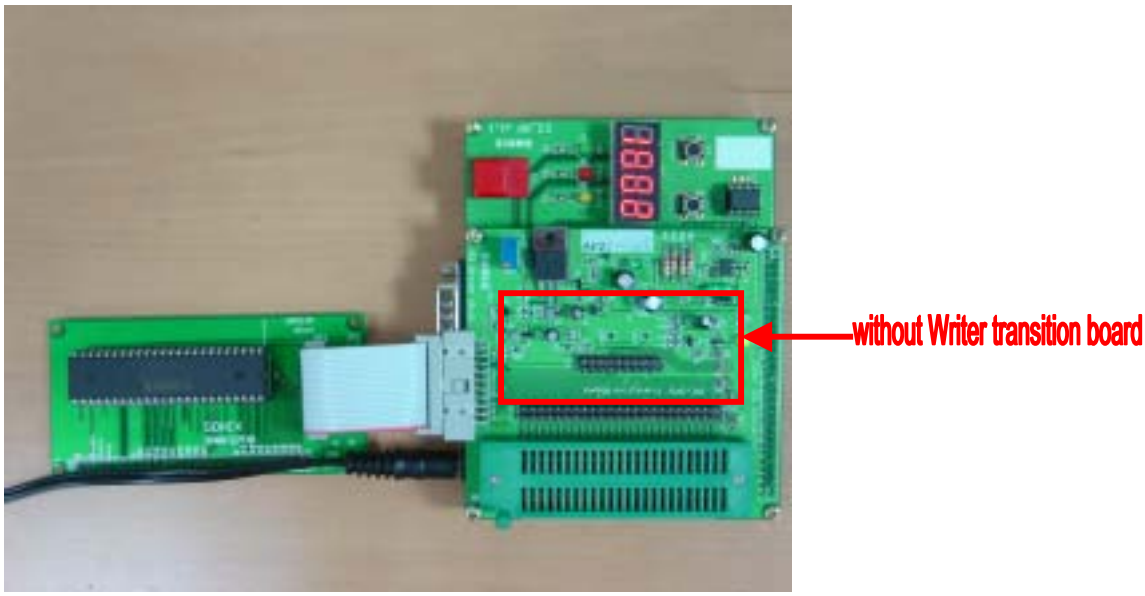


Figure6.

■ **Writer transition board (IC PIN number smaller then 48 PIN) connect with MP EZ Writer.**

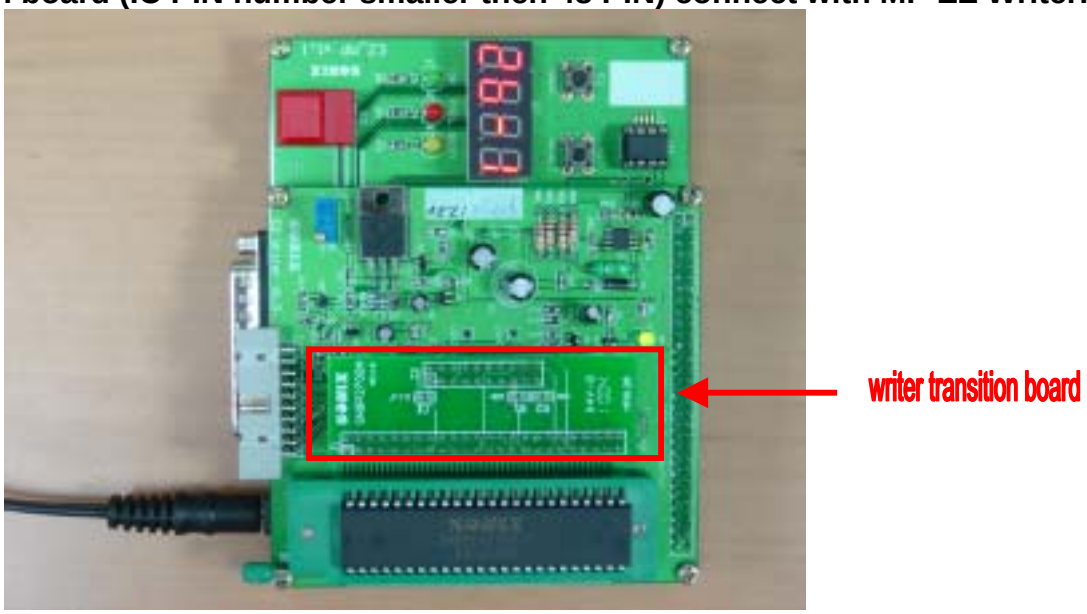


Figure7.

5. Restart MP EZ Writer (You can turn on/off DC 7.5V 2.0A power adaptor or press the Reset Key), and then seven-segment LED display will show firmware version and firmware Checksum and then show the programming file (*.SN8) MCU type and code checksum, which is stored in EEPROM.

6. Put OTP MCU on 48pins text tool as show below:

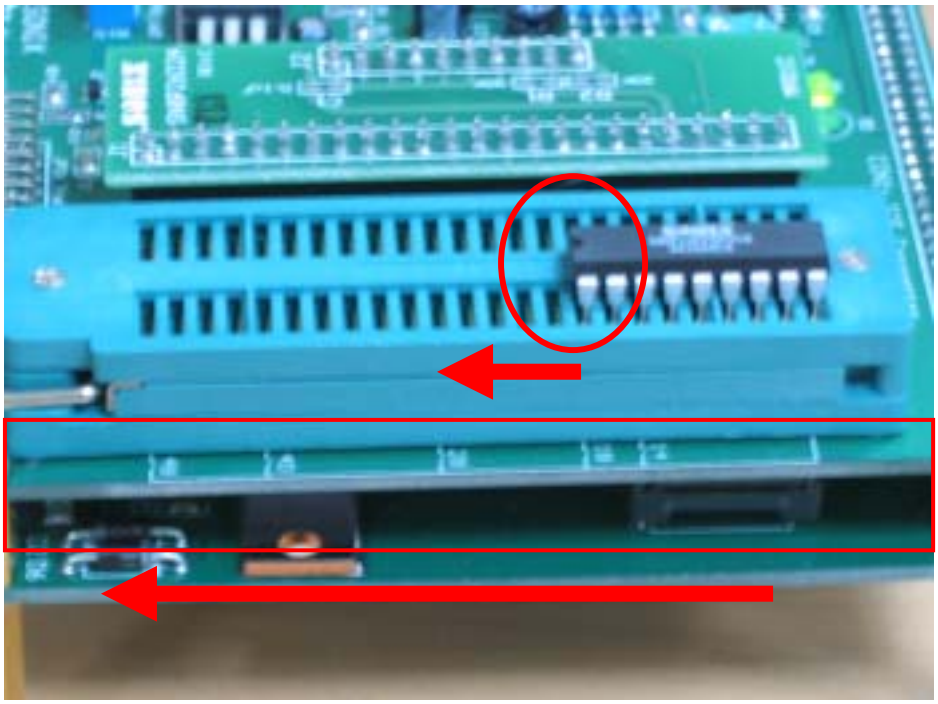


Figure8.OTP direction

7. Press the execution Key to programming. If seven-segment LED display show ”- - - -” and sound BEEP from buzzer, it means that the firmware not support the programming file (*.SN8) which is stored in EEPROM. Please check correct firmware and support MCU type. Refer to APPENDIX A.

2 First programming

MP EZ Writer basic programming steps

- **Step1 download programming file (*.SN8) to EEPROM.**
- **Step2 start programming.**

Step1 download programming file (*.SN8)

- Connect DC 7.5V 2.0A power adaptor.
- Connect Printer Cable.
- Download (*.SN8) file to EEPROM.
- Remove Printer Cable.

Step2 start programming

- Connect Writer transition board and then Restart MP EZ Writer (You can on/off DC 7.5V 2.0A power adaptor or press Reset Key).
- After seven-segment LED showing the CHIP NAME, pressing the execution Key to start programming. NOTE: The initial mode is Fun0 (Auto1: Blank Check + Program + Verify), if you want to program quickly, you can choice Fun6 (Auto2: Program + Verify). The more information about function please refer to chapter4.
- When the OTP is programmed successfully, MP EZ Writer will light the green LED.

3 Download programming file

Programming software

■ Click  MPEZ_WtV10.exe to start MP EZ Writer programming software as show below:

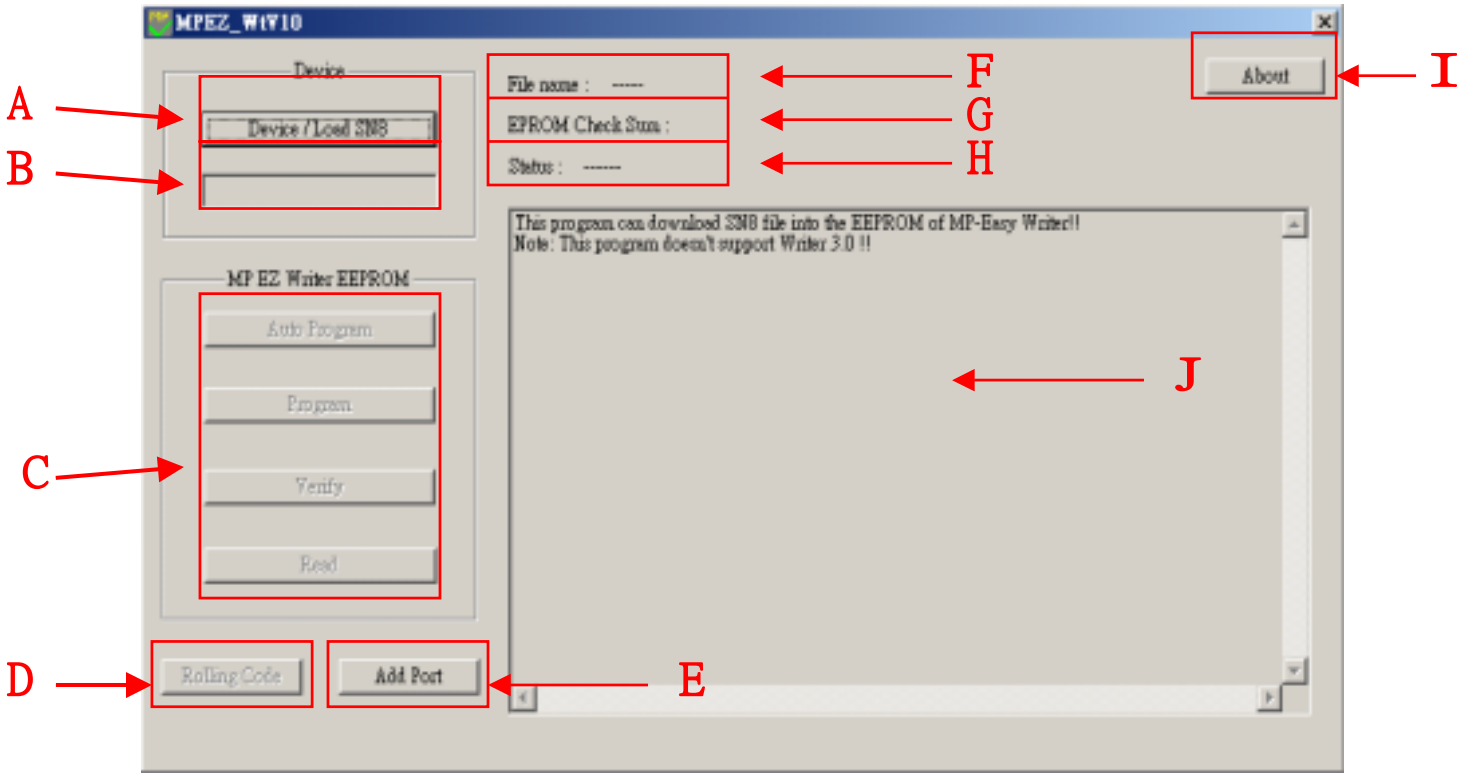


Figure9.MP EZ Writer programming software

■ NOTE:

A	Choice MCU type and open (*.SN8) file.
B	Show choice MCU type.
C	Choice Function.
D	Setting Rolling Code.
E	User define Print Port I/O location. (For used Printer Port card)
F	Show (*.SN8) file route.
G	Show (*.SN8) file Checksum, and show Security Enable/Disable state.
H	Show software state. For example: Programming、Read…etc.
I	Show the purpose of function.
J	Information dialogue block.

Download (*.SN8) file

- Press" Device/Load SN8" button can choice Device and SN8 File as show below:

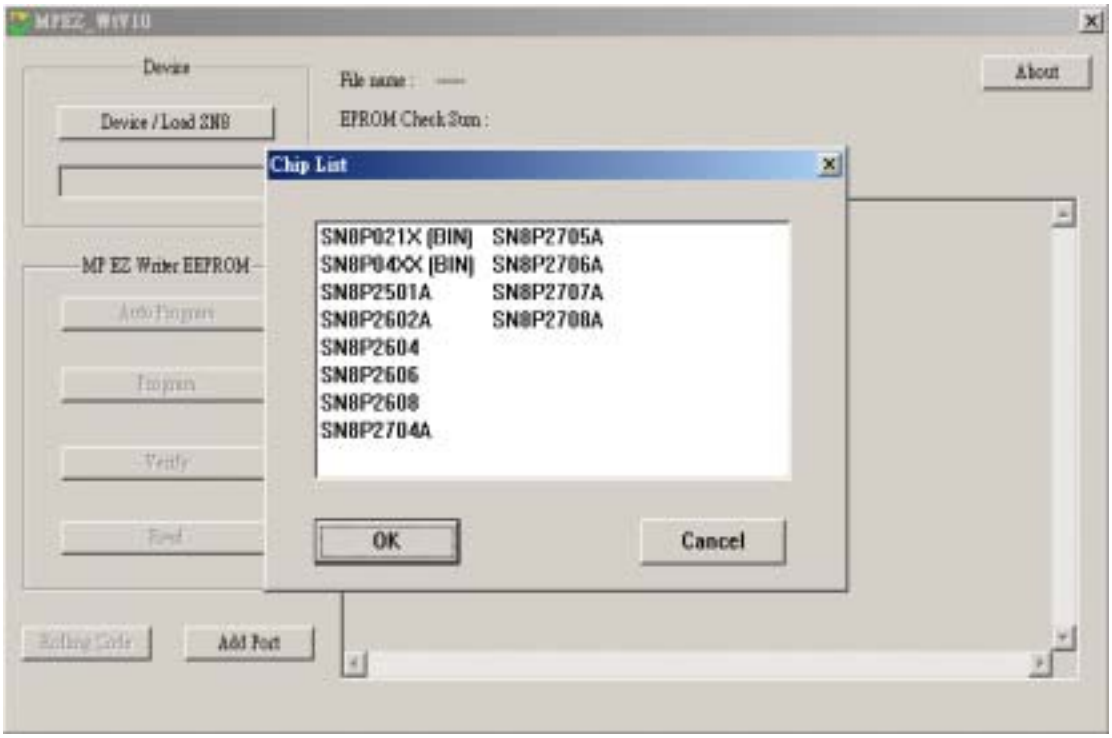


Figure10.Choice Chip type

- If you had open (*.SN8) file, then it will show all function as figure12. If you don't open (*.SN8) file, then it will only show "Read" function as figure11.

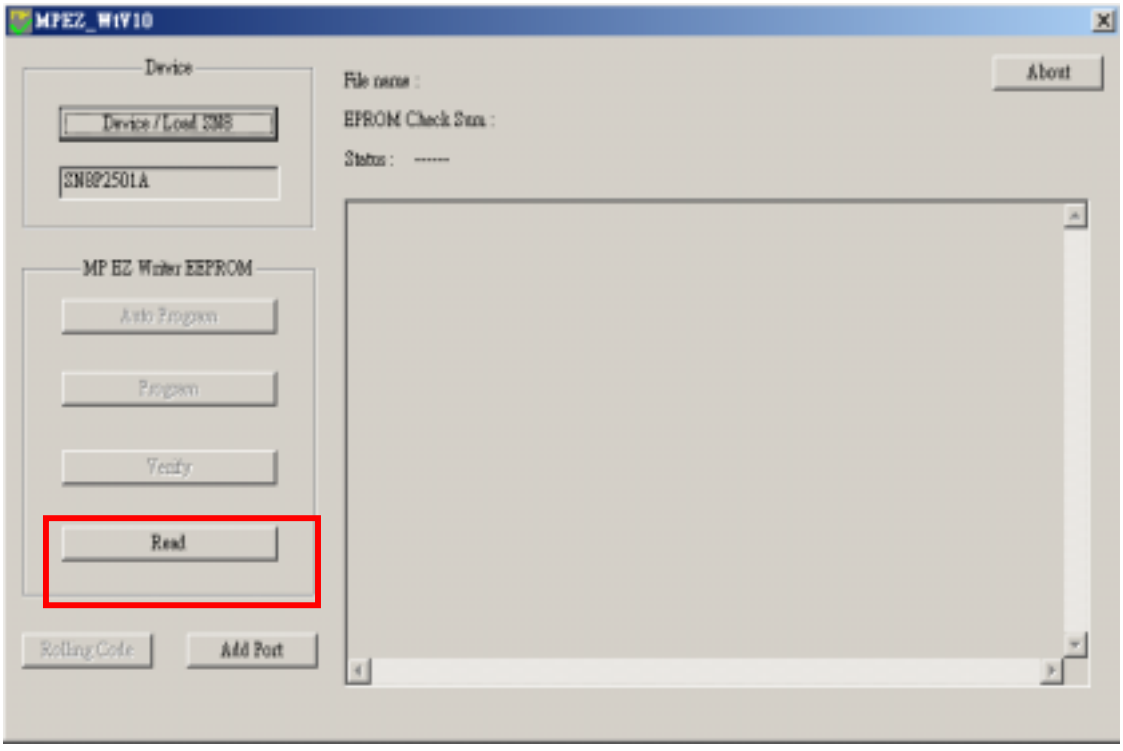


Figure11.not open (*.SN8) file

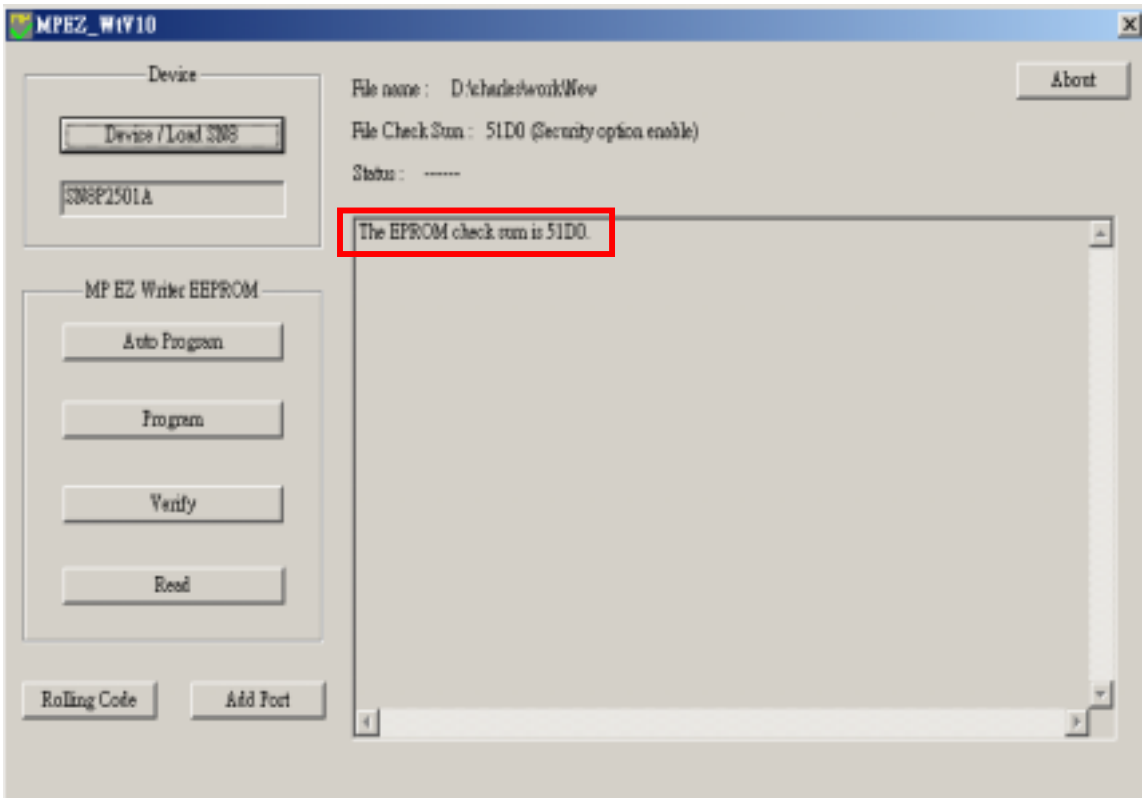


Figure12.open (*.SN8) file

- Press “Auto Program” button will download (*.SN8) file to EEPROM and then Verify.

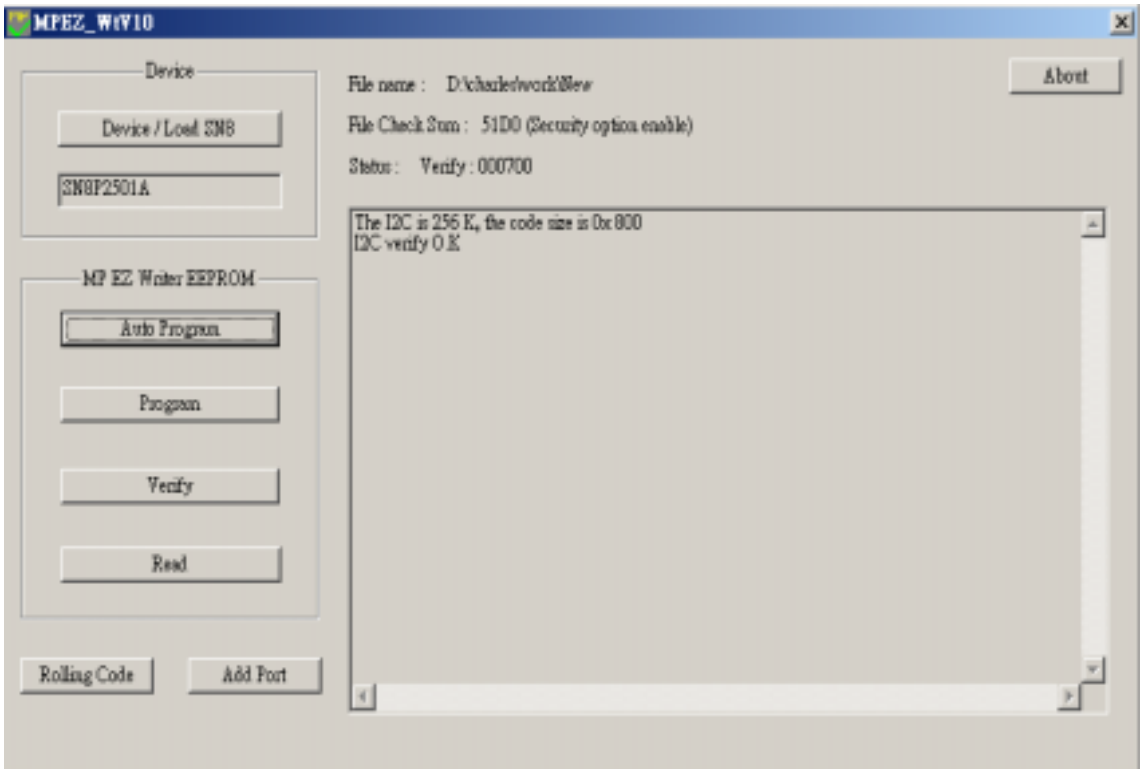


Figure13.Auto Program EEPROM success

- Press ”Program” button will download (*.SN8) file to EEPROM, but will not verify.

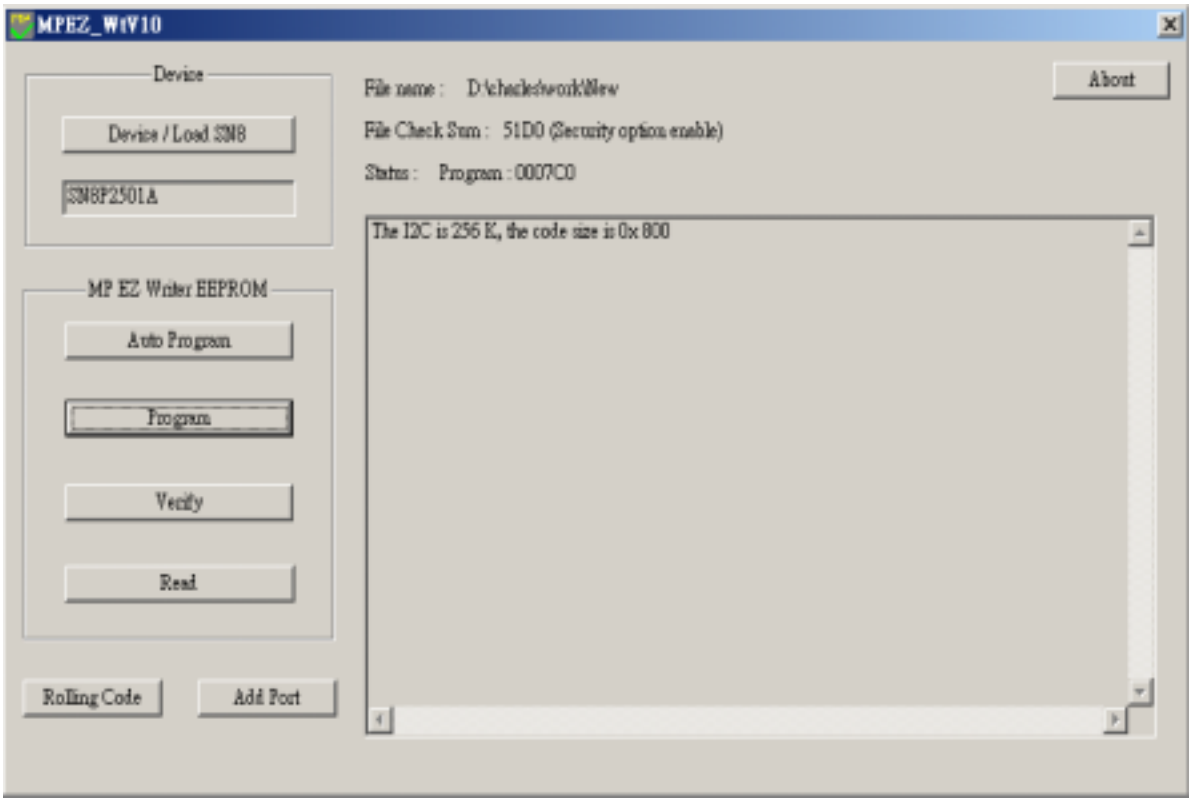


Figure14. Programming EEPROM success

- Press ”Verify” button to check EEPROM and source data..

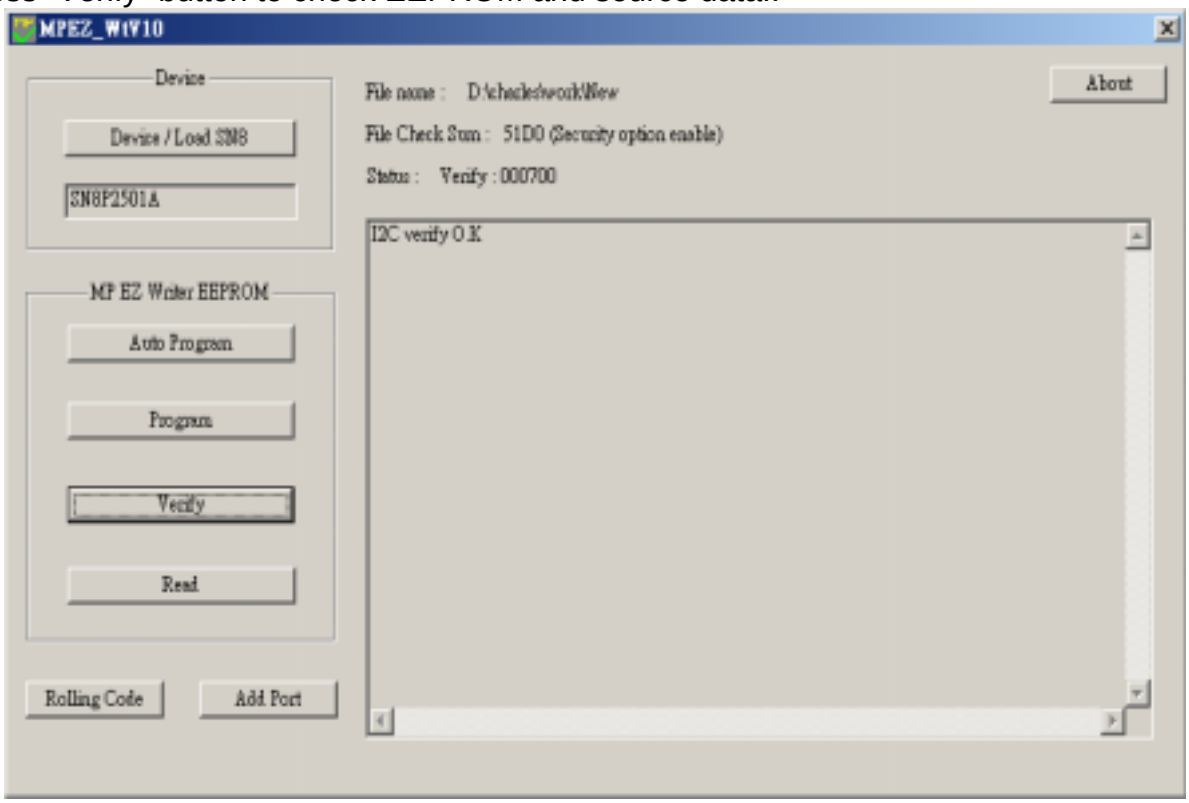


Figure15.Check EEPROM data

- If there are any different between EEPROM and source data, it will show ”EEPROM has some problem” as below:

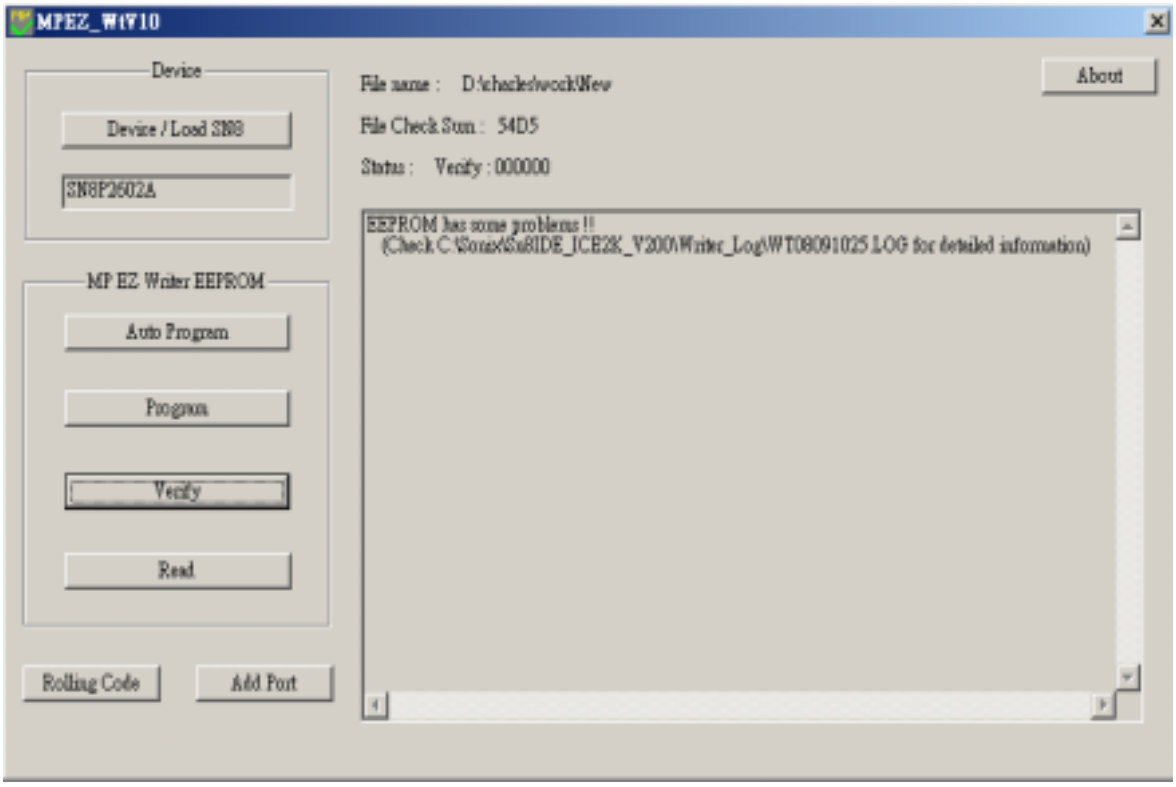


Figure16.Check EEPROM error

- Press ”READ” button will read OTP DATA and then show in Information dialogue block. The data will store as *.BBB file under Writer_log route.

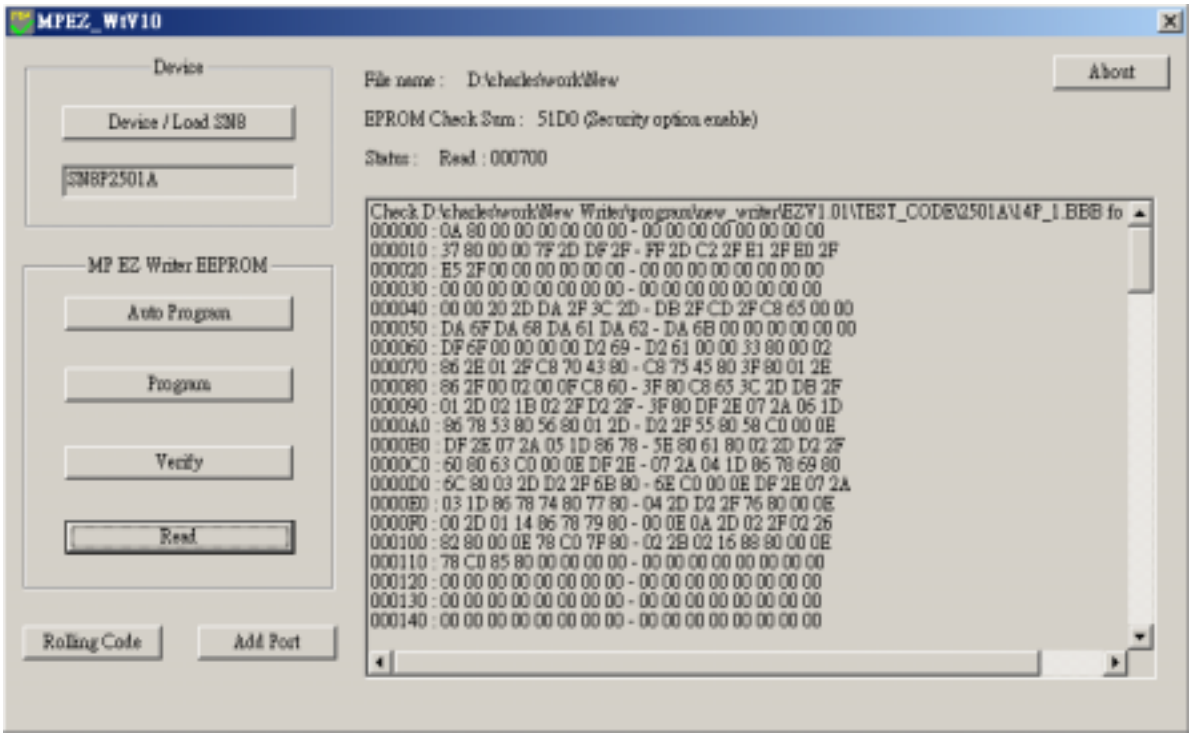


Figure17.Read EEPROM data

- Information dialogue block can show EEPROM Checksum and Security Enable/Disable state.
- After download (*.SN8) file to EEPROM, you must restart MP EZ Writer. Then MP EZ Writer will check (*.SN8) file again and then show Chip Name.

4 Writer operation introduction

MP EZ Writer function table and instruction

Mode	Action	Running		Success		Fail	
		seven-segment LED	LED	seven-segment LED	LED	seven-segment LED	LED
Fun0	Auto1 (Blank+Program+Verify)	X	Yellow	Checksum Or Rolling Code	Green	Err1, Err2, Err3	Red
Fun1	Blank Check	X	Yellow	Fun1	Green	Err1	Red
Fun2	Program	X	Yellow	Fun2	Green	Err2	Red
Fun3	Verify	X	Yellow	Checksum Or Rolling Code	Green	Err3	Red
Fun4	Read OTP	X	Yellow	Checksum	Green	Indefinite value	Red
Fun5	Read EEPROM	X	Yellow	Checksum	Green	Err4	Red
Fun6	Auto2 (Program+Verify)	X	Yellow	Checksum Or Rolling Code	Green	Err2 or Err3	Red
Fun7	Show rolling code	X	Yellow	Lowest word	Green	-	-
Fun8	Show firmware and version	X	Yellow	EX:1A13	Green	-	-

NOTATION：

1. Press “MODE” button to choice different Mode. After restart, MP EZ Writer initial define is “Fun0”.
2. Checksum： Show security checksum with Security.
   Show EEPROM checksum without Security.
   (Assembler will generate two kinds of checksum.)
3. Rolling Code：Under Fun0、Fun3 and Fun6 Mode, if start rolling code function, then it will show the lowest word of rolling code, but will not show the Checksum.
4. Fun8 mode can show firmware and version. For example 1-13: 1 means 1 series,13 means version.

Item	Error message	Message explain
1	CHIP-Erro	Firmware not support EEPROM (*.SN8) file
2	PC-onLInE	Printer Cable not remove
3	Err0	VPP voltage error
4	Err1	Blank Check fail
5	Err2	Program fail
6	Err3	Verify fail
7	Err4	Read EEPROM fail

MP EZ Writer operation instruction

- Download SN8 to MP EZ Writer EEPROM, then remove Printer Cable, and then connect ICE transition board or Writer transition board. Then Put OTP MCU on 48pins text tool

  After check EEPROM OK, then seven-segment LED display will show firmware version、firmware checksum、MCU type and (*.SN8) checksum. For example 16B-XXXX, 16B means that firmware version, XXXX means that firmware checksum. Then show MCU Chip Name and Checksum. For example 2501A-1234, 2501A means that MCU type, 1234 means the file's checksum.

- After reset, MP EZ Writer initial Mode is Fun0 (Auto1). Press the execution Key to programming. Fun0 (Auto1) means that "Blank Check + Program + Verify". If programming error, then seven-segment LED display will show error message and you will hear warning sound from buzzer. Press the execution Key again to stop buzzer, and then seven-segment LED display will show Fun0.

- User can used "Mode" key to choose function. Function table is printed on the back of PCB board.
  After choosing function, and then press the execution Key to start. NOTE: before EZ_MP PCB V1.2 version, Fun8 not print in the Function table.

Figure18.Function table

- When OTP running Blank check、Program、Verify、Read, seven-segment LED display will not show any message and the execution Key has no affection.
- MP EZ Writer can support Rolling Code programming. Set the step Rolling Value and initial Rolling Code when download (*.SN8) file to EEPROM. When programming finished, it will show the lowest word of Rolling code. If programming fail, Rolling Code value will not change, and then if programming success, Rolling Code value will change. At this moment, used Fun7 to check Rolling Code can find that it will be changed.
- The EEPROM's type is 24LC256, and it can support 16K WORD memory. Please don't change it to other types EEPROM, otherwise it may occur error.
- Don't use other programmer to download program file (*.SN8) into the MP EZ Writer's

EEPROM.

5 Trouble Shooting

Test Mode

- Please remove OTP and transition board, and then press the execution Key and RESET key in the same time to into test mode. At this moment, Yellow LED、Red LED and Green LED will in rolling state, and you will hear warning sound from buzzer. Measure VPP voltage as show below: if VPP voltage is not equal to 12.3V, then adjust VR to set VPP voltage to12.3V. After adjust OK, press RESET key to return to normal mode.

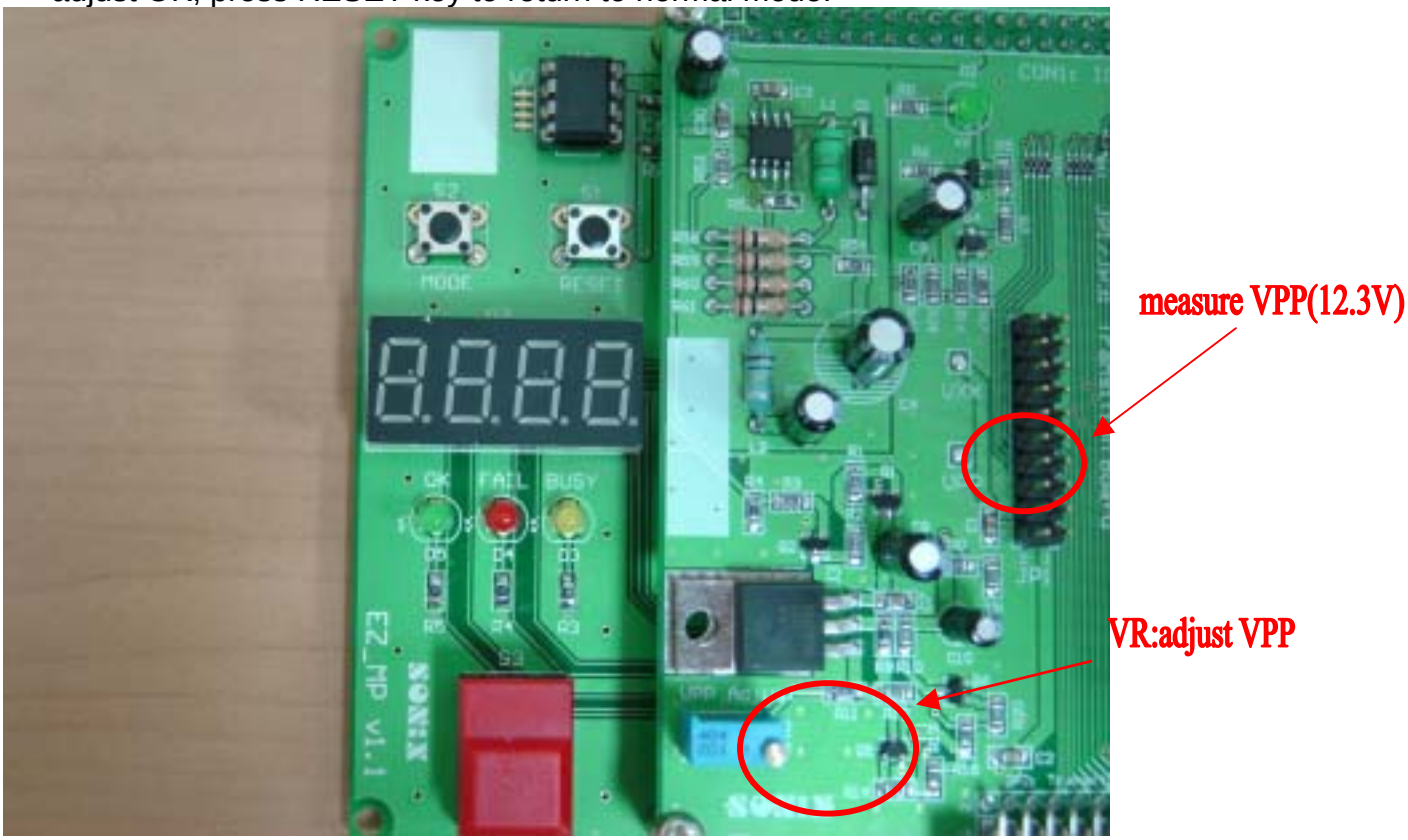


Figure19.VPP adjust

Error message and trouble shooting

- CHIP-Erro or ”- - - -“ means that the firmware not support the (*.SN8) file. Please download correct (*.SN8) file or change firmware (means that should change SN8P2708A on base control board, please contact with SONiX agent).
- “PC-onLinE” means that Printer Cable not remove. Please remove Printer Cable and press Reset key.
- Err0 means that VPP or VXX not correct. Please check MCU direction or transition board should mapping to correct MCU type.
- Err1 means that Blank Check Fail. Make sure MCU is blank、MCU direction or transition board

direction.

- Err2 means that Program Fail. Please make sure MCU type is correct or check MCU and transition board direction.
- Err3 means that Verify Fail. Please check MCU and transition board direction.
- Err4 means that EEPROM read fail. Please press RESET key to restart. If this way can not settled this problem, please change the EEPROM.

6 APPENDIX

APPENDIX A: MP EZ Writer Firmware classification

■ Show in seven-segment LED display message:

Show name/version	Firmware file name	support MCU type
2-10	**MP2X_Vx_Chksum.SN8**	**SN8P2X series MCU**
1-10	**MP1X_Vx_Chksum.SN8**	**SN8P1X series MCU**

Example of firmware name:MP2X_V1_25FD.SN8,V1 means that version,25FD means that checksum.

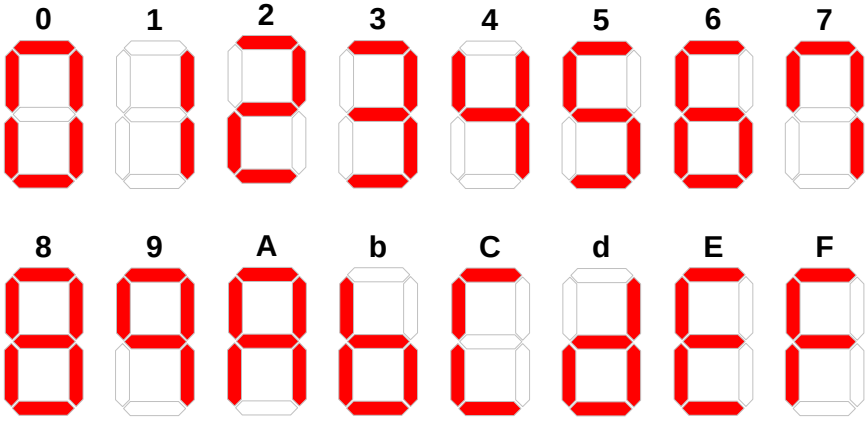
■ MP EZ Writer and Writer 3.0 compare table

Writer	Independent programming	Show message	power	48-pins Text Tool	support Rolling code	V3 Transition board	MP Transition board	VPP Test Mode
MP-EZ	YES	YES	DC 7.5V	YES	YES	YES	YES	YES
Writer V3.0	YES	NO	DC 15V	NO	NO	YES	NO	YES

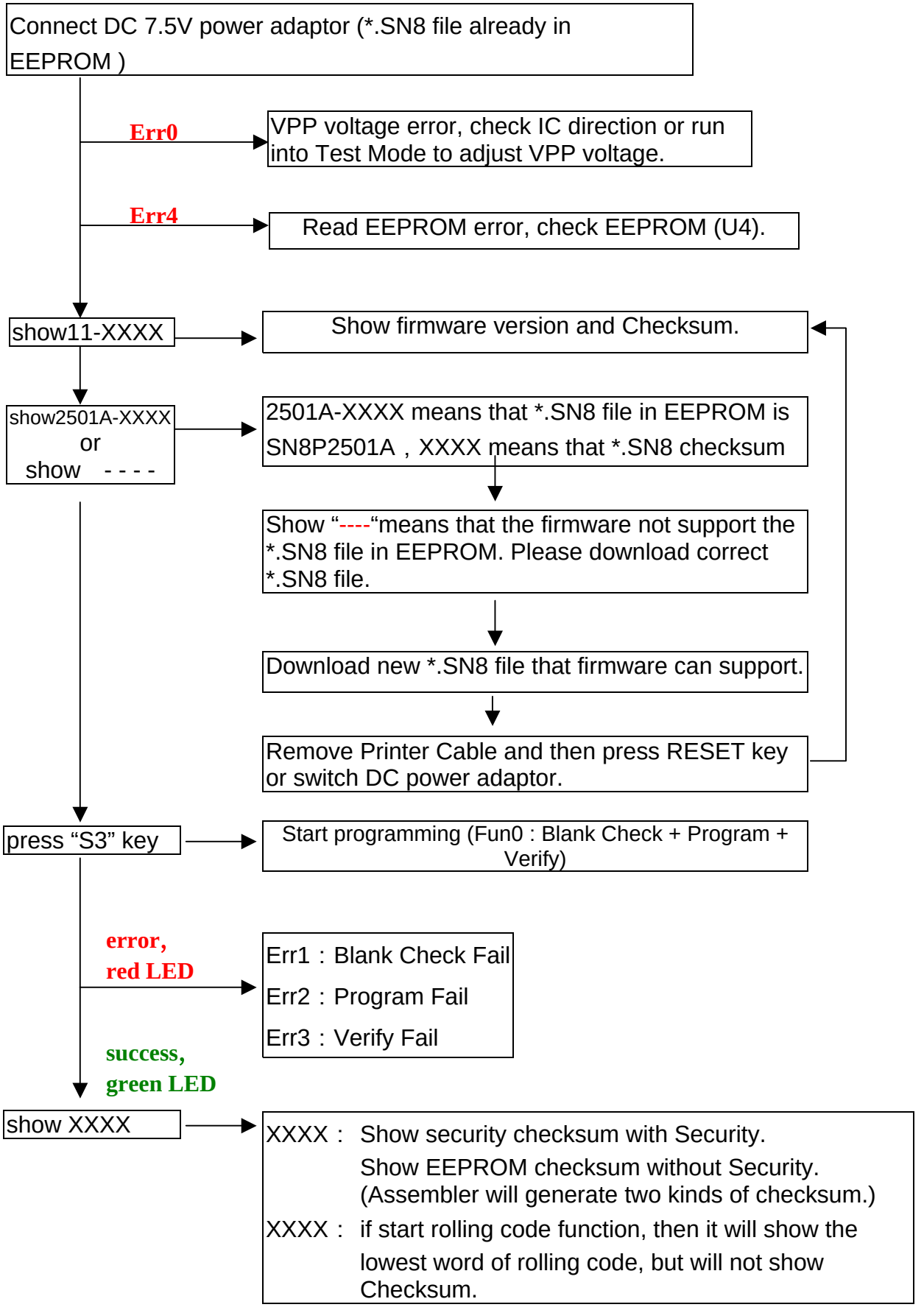
APPENDIX B: accessory list

Accessory name	amount	instruction
MP EZ Writer	1	Programming board and base control board
Printer Cable	1	To connect with PC
DC power adaptor	1	7.5V , 2.0A
Writer transition board	1	Connect with MP EZ Writer
20-Pins cable	1	To connect with ICE transition board

APPENDIX C: seven-segment LED display 0 ~ 9, A~ F word



APPENDIX D: Quick start



APPENDIX E: OTP programming pin mapping

Writer programming pin mapping

VSS	2	1	VDD
CE	4	3	CLK/PGCLK
OE/ShiftDat	6	5	PGM/OTPCLK
D0	8	7	D1
D2	10	9	D3
D4	12	11	D5
D6	14	13	D7
VPP	16	15	VDD
RST	18	17	HLS
ALSB/PDB	20	19	-

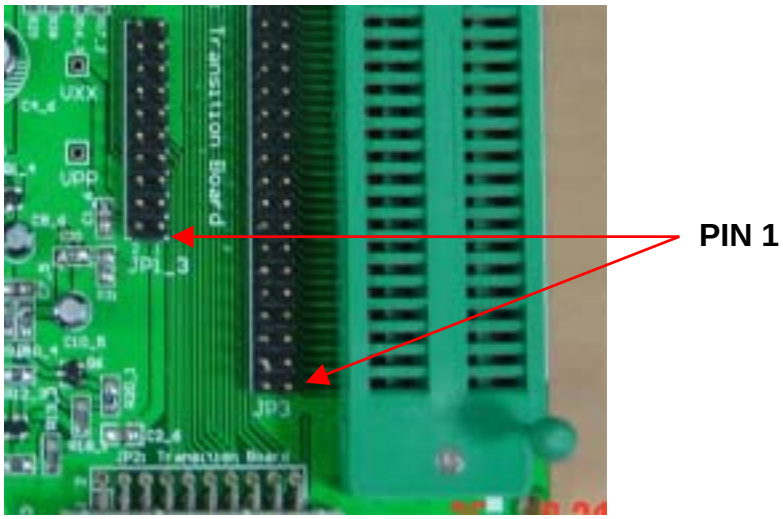
JP1 of writer transition board
JP2 of ICE transition board

JP3 PIN mapping to OTP PIN

DIP1	1	48	DIP48
DIP2	2	47	DIP47
DIP3	3	46	DIP46
DIP4	4	45	DIP45
DIP5	5	44	DIP44
DIP6	6	43	DIP43
DIP7	7	42	DIP42
DIP8	8	41	DIP41
DIP9	9	40	DIP40
DIP10	10	39	DIP39
DIP11	11	38	DIP38
DIP12	12	37	DIP38
DIP13	13	36	DIP36
DIP14	14	35	DIP35
DIP15	15	34	DIP34
DIP16	16	33	DIP33
DIP17	17	32	DIP32
DIP18	18	31	DIP31
DIP19	19	30	DIP30
DIP20	20	29	DIP29
DIP21	21	28	DIP28
DIP22	22	27	DIP27
DIP23	23	26	DIP26
DIP24	24	25	DIP25

JP3 of writer transition board

- **JP2: connect ICE transition board with 20 pins cable. If you want to make ICE transition board by your self, please refer to MCU programming pin mapping table.**
- **JP1/JP3: Used TEXT TOOL to programming IC, make sure connect correct type writer transition board to JP1/JP3 socket, If you want to make writer transition board by your self, please refer to MCU programming pin mapping table, and OTP pin1 should mapping to JP3 pin1, OTP pin2 should mapping to JP3 pin2.**
- **NOTE: If you want to make writer transition board by your self, JP1 and JP3 pin 1 as show below(right side) :**



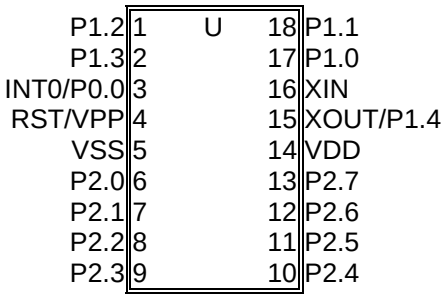
SN8P1600 Series

SN8P1600 Programming Pin Mapping

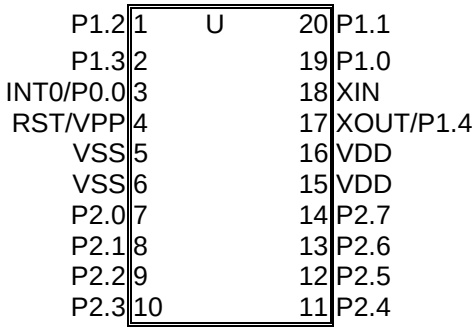
Programming Information of SN8P1600 Series							
Chip Name		SN8P1602 SN8P1603 SN8P1602A		SN8P1602B		SN8P1604 SN8P1604A	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment					
Number	Pin	Number	Pin	Number	Pin	Number	Pin
1	VDD	14	VDD	14	VDD	2	VDD
2	GND	5	VSS	5	VSS	4	VSS
3	CLK	16	XIN	16	XIN	27	XIN
4	CE	3	P0.0	3	P0.0	5	P0.0
5	PGM	18	P1.1	18	P1.1	11	P1.1
6	OE	17	P1.0	17	P1.0	10	P1.0
7	D1	7	P2.1	7	P2.1	19	P2.1
8	D0	6	P2.0	6	P2.0	18	P2.0
9	D3	9	P2.3	9	P2.3	21	P2.3
10	D2	8	P2.2	8	P2.2	20	P2.2
11	D5	11	P2.5	11	P2.5	23	P2.5
12	D4	10	P2.4	10	P2.4	22	P2.4
13	D7	13	P2.7	13	P2.7	25	P2.7
14	D6	12	P2.6	12	P2.6	24	P2.6
15	VDD	-	-	-	-	-	-
16	VPP	4	RST	4	RST	3	VPP
17	HLS	-	-	1	P1.2	-	-
18	RST	-	-	-	-	28	RST
19	-	-	-	-	-	-	-
20	ALSB/PDB	-	-	-	-	-	-

SN8P1600 Series Pin Assignment

SN8P1602/SN8P1603/SN8P1602A/SN8P1602B
(P: P-DIP 18PIN, S: SOP 18PIN, X: SSOP 20PIN)



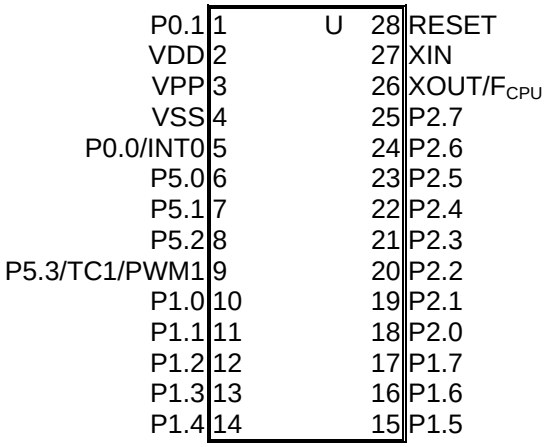
SN8P1602P
SN8P1602S
SN8P1603P
SN8P1603S
SN8P1602AP
SN8P1602AS
SN8P1602BP
SN8P1602BS



SN8P1602X
SN8P1603X
SN8P1602AX
SN8P1602BX

Note: The VPP and RST is same pin in SN8P1602/ SN8P1603/SN8P1602A/SN8P1602B

SN8P1604/SN8P1604A
(P: P-DIP 28PIN, K: SK-DIP 28PIN, S: SOP 28PIN)



SN8P1604K
SN8P1604S
SN8P1604AK
SN8P1604AP
SN8P1604AS

SN8P1700 Series

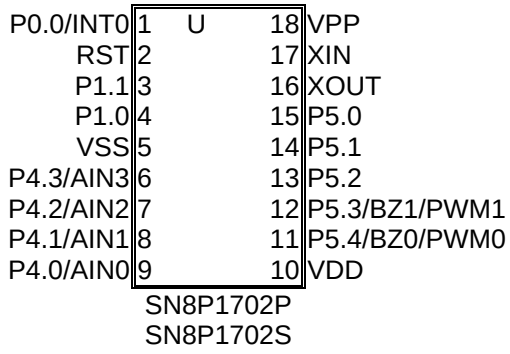
SN8P1700 Series Programming Pin Mapping

Programming Information of SN8P1700 Series											
Chip Name		SN8P1702		SN8P1704		SN8P1706		SN8P1707		SN8P1708	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment									
Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin
1	VDD	10	VDD	3,14	VDD	4,22	VDD	9,28	VDD	16,36,37	VDD
2	GND	5	VSS	7,21	VSS	12,33	VSS	17,18,42	VSS	4,5,17,25, 26,43	VSS
3	CLK	17	XIN	23	XIN	35	XIN	44	XIN	7	XIN
4	CE	1	P0.0	25	P0.0	37	P0.0	2	P0.0	9	P0.0
5	PGM	3	P1.1	5	P1.1	6	P1.1	11	P1.1	19	P1.1
6	OE	4	P1.0	6	P1.0	7	P1.0	12	P1.0	20	P1.0
7	D1	8	P4.1	11	P4.1	19	P4.1	25	P4.1	33	P4.1
8	D0	9	P4.0	12	P4.0	20	P4.0	26	P4.0	34	P4.0
9	D3	6	P4.3	9	P4.3	17	P4.3	23	P4.3	31	P4.3
10	D2	7	P4.2	10	P4.2	18	P4.2	24	P4.2	32	P4.2
11	D5	14	P5.1	19	P5.1	30	P5.1	36	P5.1	46	P5.1
12	D4	15	P5.0	20	P5.0	31	P5.0	37	P5.0	47	P5.0
13	D7	12	P5.3	17	P5.3	28	P5.3	34	P5.3	44	P5.3
14	D6	13	P5.2	18	P5.2	29	P5.2	35	P5.2	45	P5.2
15	VDD	-	-	-	-	-	-	-	-	-	-
16	VPP	18	VPP	24	VPP	36	VPP	1	VPP	8	VPP
17	HLS	-	-	-	-	-	-	-	-	-	-
18	RST	2	RST	28	RST	40	RST	5	RST	12	RST
19	-	-	-	-	-	-	-	-	-	-	-
20	ALSB/PDB	-	-	-	-	-	-	-	-	-	-

➢

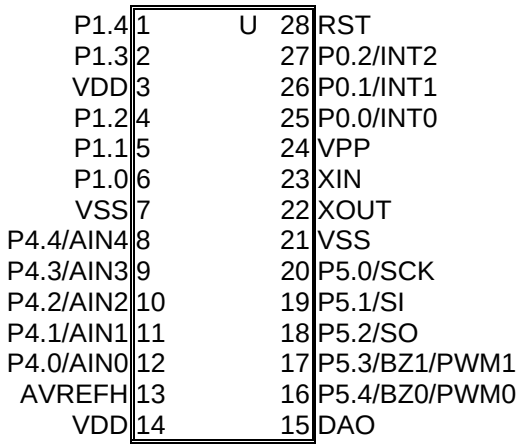
SN8P1700 Series Pin Assignment

SN8P1702 (P-DIP 18PIN, SOP 18PIN)



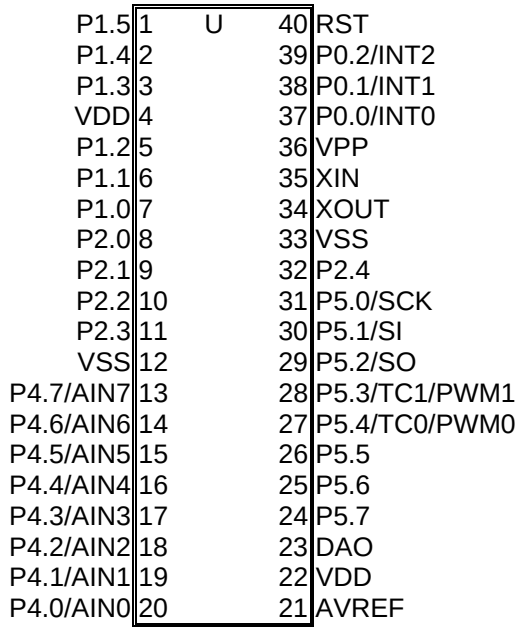
SN8P1702P
SN8P1702S

SN8P1704 (SK-DIP 28PIN, SOP 28PIN)



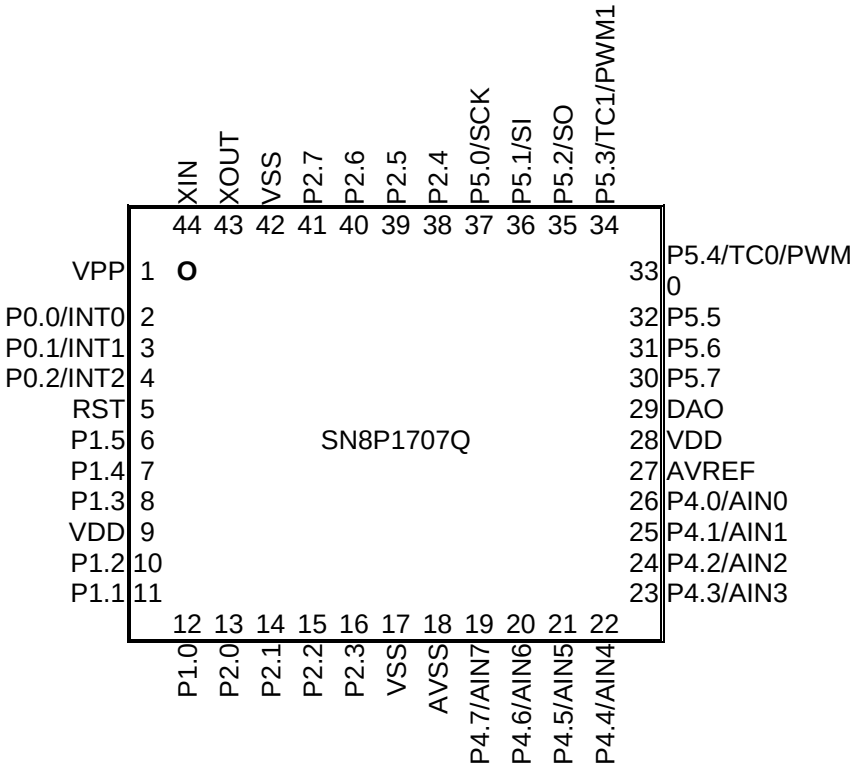
SN8P1704K
SN8P1704S

SN8P1706 (P-DIP 40PIN)

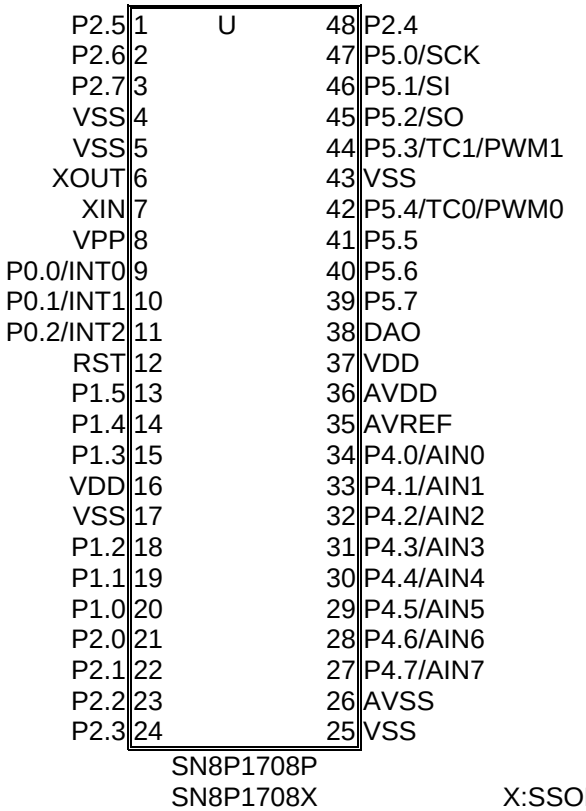


SN8P1706P

SN8P1707 (QFP 44PIN)



SN8P1708 (P-DIP and SSOP 48PIN)



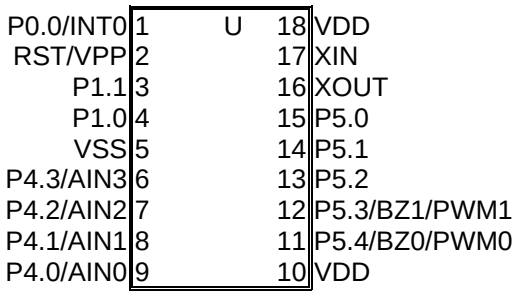
SN8P1700A Series

SN8P1700A Series Programming Pin Mapping

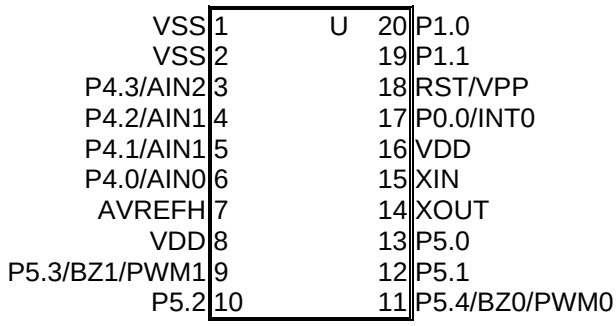
Programming Information of SN8P1700A Series					
Chip Name		SN8P1702A		SN8P1703A	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment			
Number	Pin	Number	Pin	Number	Pin
1	VDD	10,18	VDD	11,20	VDD
2	GND	5	VSS	5	VSS
3	CLK	17	XIN	19	XIN
4	CE	1	P0.0	1	P0.0
5	PGM	3	P1.1	3	P1.1
6	OE	4	P1.0	4	P1.0
7	D1	8	P4.1	8	P4.1
8	D0	9	P4.0	9	P4.0
9	D3	6	P4.3	6	P4.3
10	D2	7	P4.2	7	P4.2
11	D5	14	P5.1	16	P5.1
12	D4	15	P5.0	17	P5.0
13	D7	12	P5.3	14	P5.3
14	D6	13	P5.2	15	P5.2
15	VDD	-	-	-	-
16	VPP	2	RST	2	RST
17	HLS	11	P5.4	13	P5.4
18	RST	-	-	-	-
19	-	-	-	-	-
20	ALSB/PDB	-	-	-	-

SN8P1700A Series Pin Assignment

SN8P1702A (P-DIP 18PIN, SOP 18PIN, SSOP 20PIN)

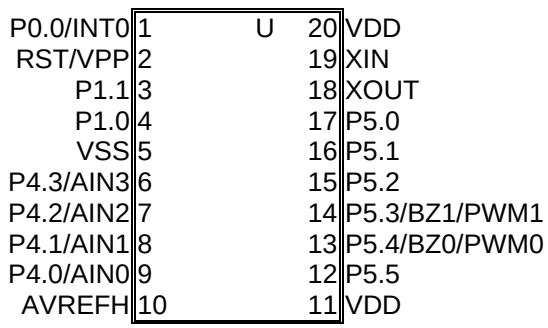


SN8P1702AP
SN8P1702AS



SN8P1702AX

SN8P1703A (P-DIP 20PIN, SOP 20PIN, SSOP 20PIN)



SN8P1703AP
SN8P1703AS
SN8P1703AX

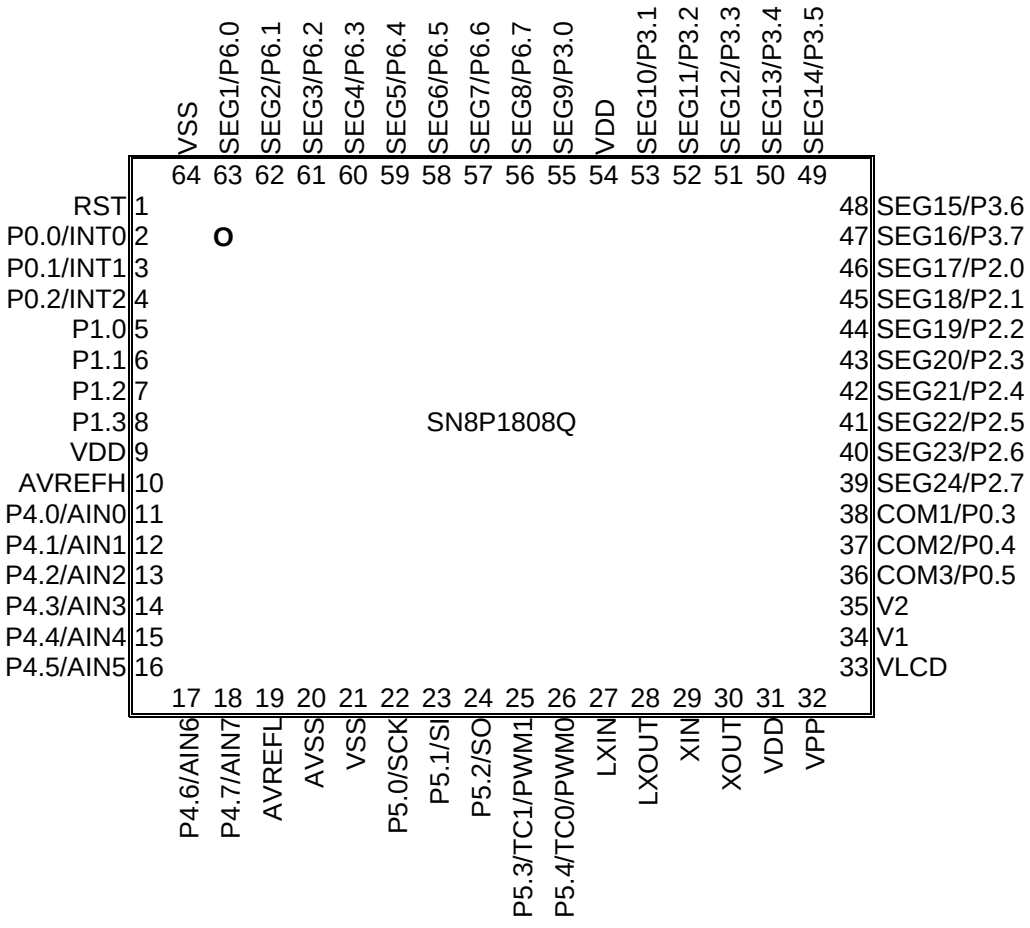
SN8P1800 Series

SN8P1800 Series Programming Pin Mapping

Programming Information of SN8P1800 Series			
Chip Name		SN8P1808	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment	
Number	Pin	Number	Pin
1	VDD	9,31,54	VDD
2	GND	20,21,64	VSS
3	CLK	29	XIN
4	CE	2	P0.0
5	PGM	6	P1.1
6	OE	5	P1.0
7	D1	12	P4.1
8	D0	11	P4.0
9	D3	14	P4.3
10	D2	13	P4.2
11	D5	23	P5.1
12	D4	22	P5.0
13	D7	25	P5.3
14	D6	24	P5.2
15	VDD	-	-
16	VPP	32	VPP
17	HLS	-	-
18	RST	1	RST
19	-	-	-
20	ALSB/PDB	-	-

SN8P1800 Series Pin Assignment

SN8P1808 (LQFP 64PIN)



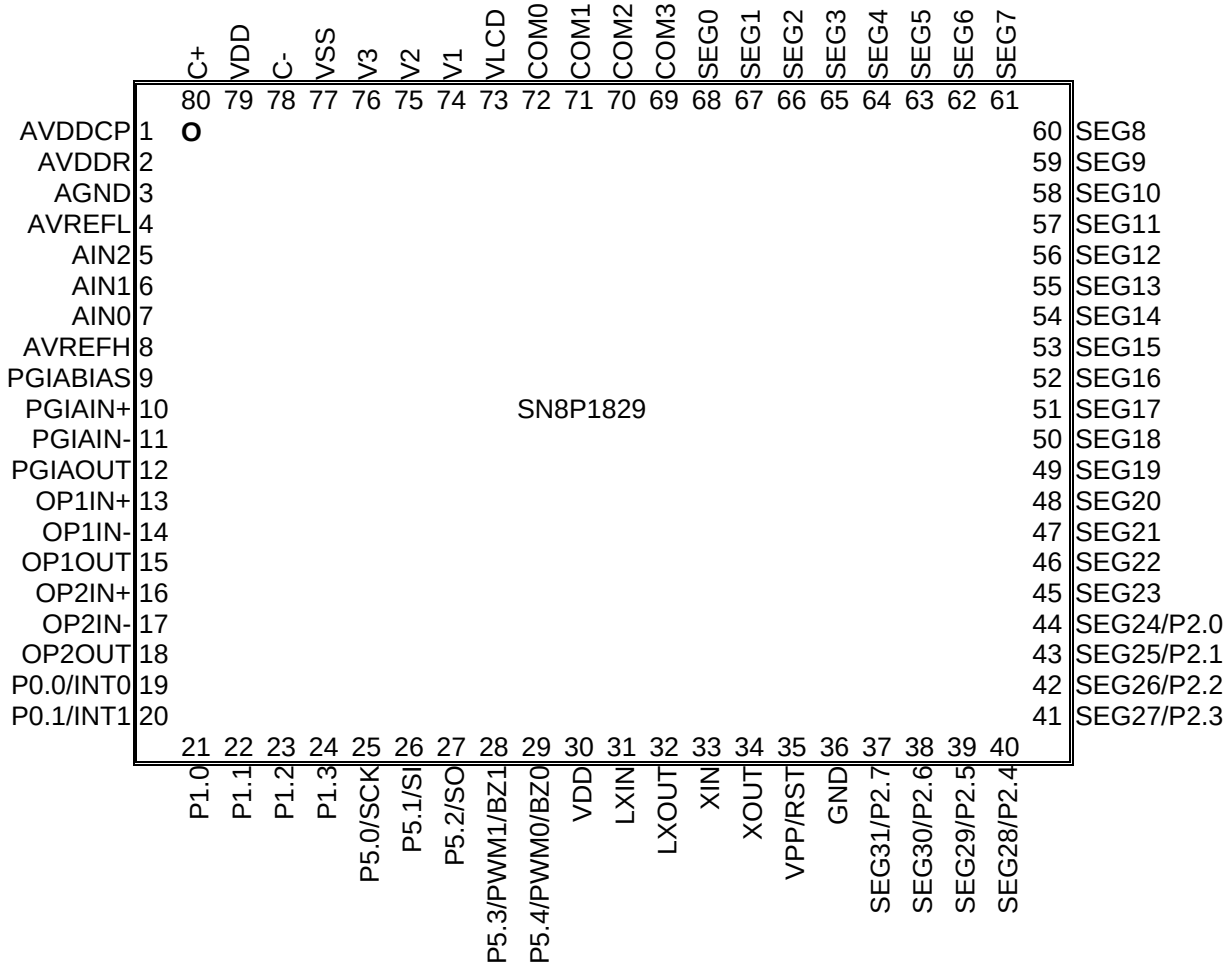
SN8P1820 Series

SN8P1820 Series Programming Pin Mapping

Programming Information of SN8P1810 Series			
Chip Name		SN8P1829	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment	
Number	Pin	Number	Pin
1	VDD	30,79,73	VDD
2	GND	36,77	VSS
3	CLK	33	XIN
4	CE	19	P0.0
5	PGM	22	P1.1
6	OE	21	P1.0
7	D1	43	P2.1
8	D0	44	P2.0
9	D3	41	P2.3
10	D2	42	P2.2
11	D5	39	P2.5
12	D4	40	P2.4
13	D7	37	P2.7
14	D6	38	P2.6
15	VDD	30,79,73	VDD
16	VPP	35	RST
17	HLS	23	P1.2
18	RST	-	-
19	-	-	-
20	ALSB/PDB	34	XOUT

SN8P1810 Series Pin Assignment

SN8P1829 (LQFP 80PIN)



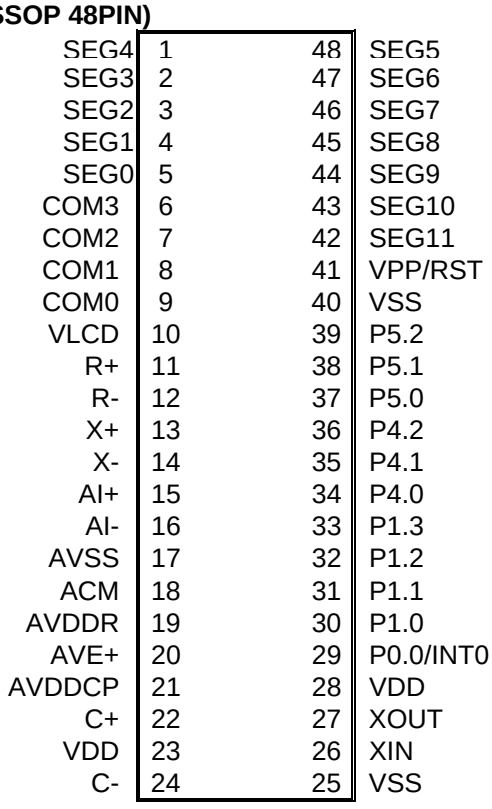
SN8P1900 Series

SN8P1900 Series Programming Pin Mapping

Programming Information of SN8P1900 Series							
Chip Name		SN8P1907		SN8P1908		SN8P1909	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment					
Number	Pin	Number	Pin	Number	Pin	Number	Pin
1	VDD	10,23,28	VDD	3,19,26,46	VDD	2,23,30,53	VDD
2	GND	25,40	VSS	21,37	VSS	25,44	VSS
3	CLK	26	XIN	24	XIN	28	XIN
4	CE	29	P0.0	27	P0.0	31	P0.0
5	PGM	35	P4.1	33	P1.1	40	P1.1
6	OE	34	P4.0	32	P1.0	39	P1.0
7	D1	31	P1.1	44	P2.1	51	P2.1
8	D0	30	P1.0	45	P2.0	52	P2.0
9	D3	33	P1.3	42	P2.3	49	P2.3
10	D2	32	P1.2	43	P2.2	50	P2.2
11	D5	37	P5.0	40	P2.5	47	P2.5
12	D4	36	P4.2	41	P2.4	48	P2.4
13	D7	39	P5.2	38	P2.7	45	P2.7
14	D6	38	P5.1	39	P2.6	46	P2.6
15	VDD	10,23,28	VDD	3,19,26,46	VDD	2,23,30,53	VDD
16	VPP	41	VPP	31	RST	38	RST
17	HLS	42	SEG11	34	P1.2	41	P1.2
18	RST	-	-	-	-	-	-
19	-	-	-	-	-	-	-
20	ALSB/PDB	27	XOUT	25	XOUT	29	XOUT

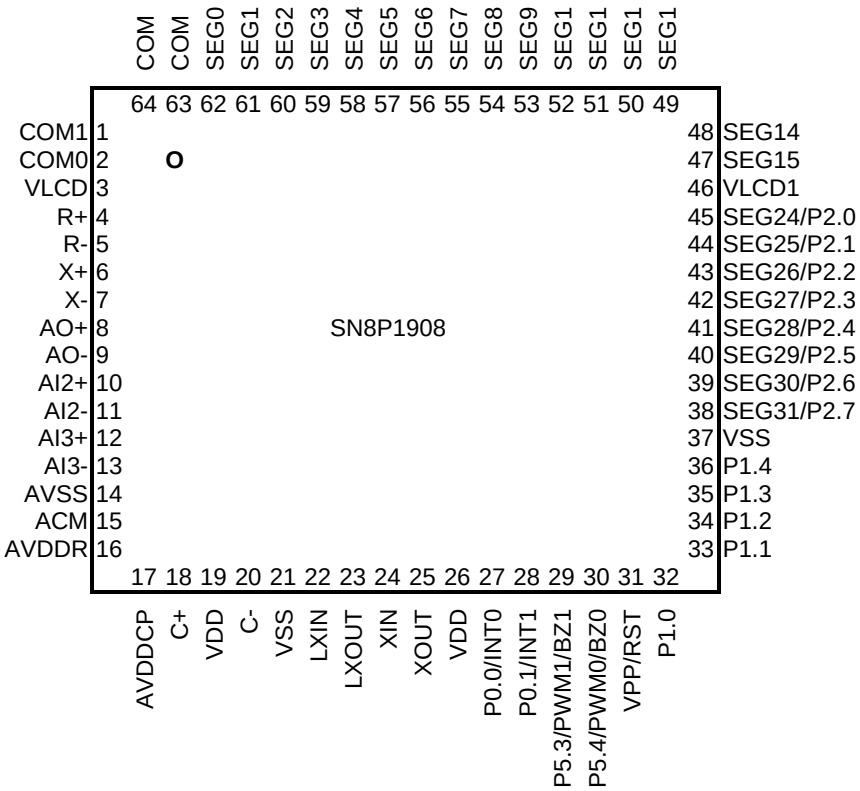
SN8P1900 Series Pin Assignment

SN8P1907 (P-DIP 48PIN, SSOP 48PIN)

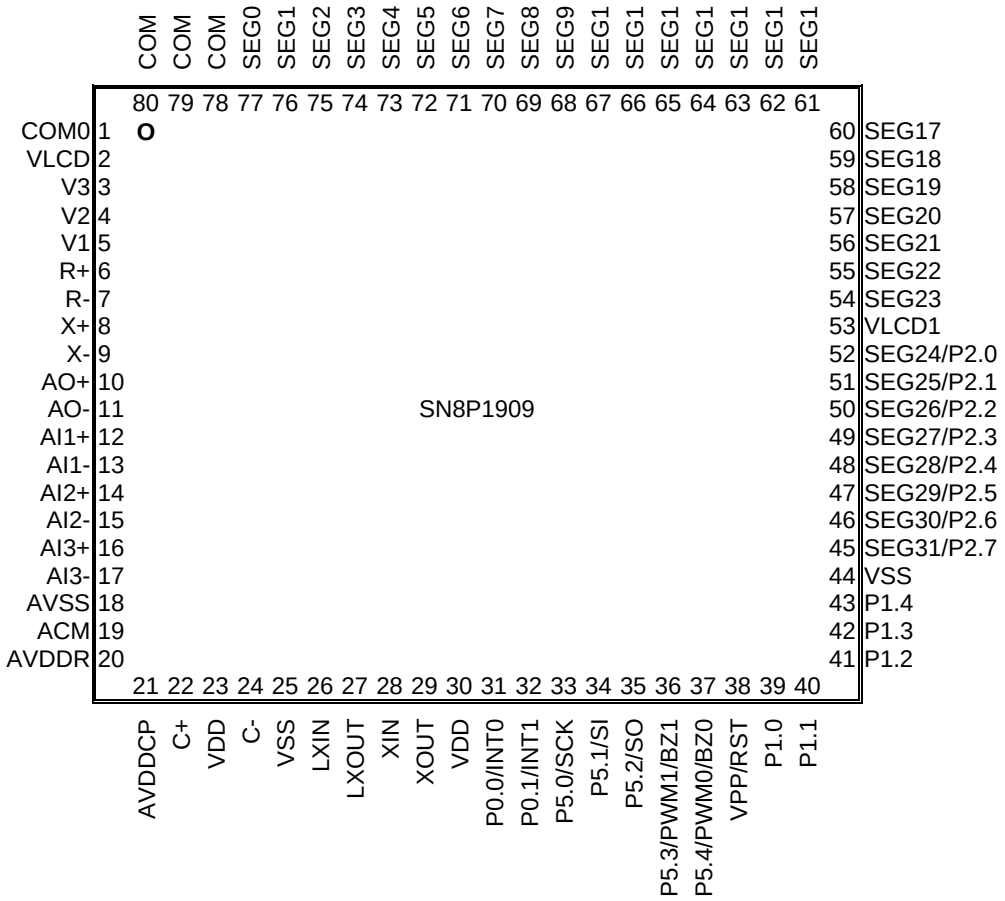


SN8P1907P
SN8P1907X

SN8P1908 (LQFP 64PIN)



SN8P1909 (LQFP 80PIN)



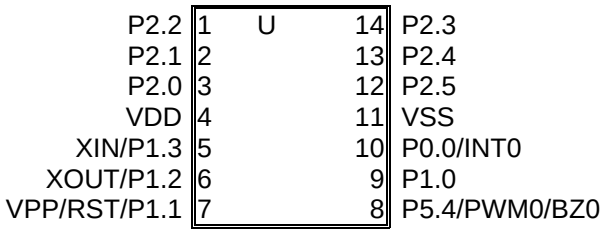
SN8P2500A Series

SN8P2500A Series Programming Pin Mapping

Programming Information of SN8P2500A Series					
Chip Name		SN8P2501A		SN8P2501AX	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment			
Number	Pin	Number	Pin	Number	Pin
1	VDD	4	VDD	4,5	VDD
2	GND	11	VSS	12,13	VSS
3	CLK	10	P0.0	11	P0.0
4	CE	-	-	-	-
5	PGM	9	P1.0	10	P1.0
6	OE	8	P5.4	9	P5.4
7	D1	-	-	-	-
8	D0	-	-	-	-
9	D3	-	-	-	-
10	D2	-	-	-	-
11	D5	-	-	-	-
12	D4	-	-	-	-
13	D7	-	-	-	-
14	D6	-	-	-	-
15	VDD	-	-	-	-
16	VPP	7	RST	8	RST
17	HLS	-	-	-	-
18	RST	-	-	-	-
19	-	-	-	-	-
20	ALSB/PDB	6	P1.1	7	P1.1

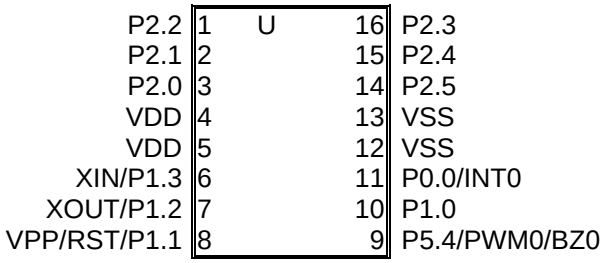
SN8P2500A Series Pin Assignment

SN8P2501A (P-DIP 14PIN, SOP 14PIN)



SN8P2501AP
SN8P2501AS

SN8P2501A (SSOP 16PIN)



SN8P2501AX

SN8P2600 Series

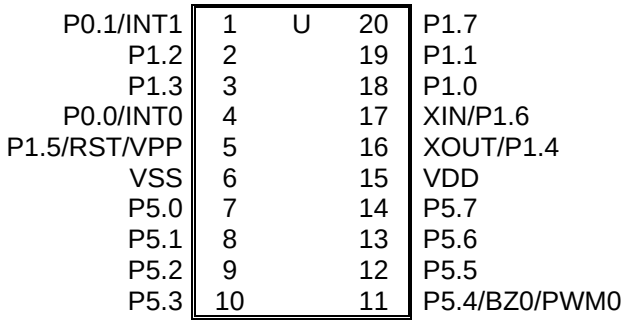
SN8P2600 Series Programming Pin Mapping

Programming Information of SN8P2600 Series											
Chip Name		SN8P2602A		SN8P2604		SN8P2606		SN8P2608		SN8P26042	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment									
Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin
1	VDD	14	VDD	2	VDD	11,32	VDD	13,39	VDD	17	VDD
2	GND	5	VSS	4	VSS	12,31	VSS	14,36	VSS	18	VSS
3	CLK	6	P5.0	6	P5.0	21	P5.0	25	P5.0	20	P5.0
4	CE	-	-	-	-	-	-	-	-	-	-
5	PGM	17	P1.0	10	P1.0	40	P1.0	1	P1.0	3	P1.0
6	OE	7	P5.1	7	P5.1	20	P5.1	24	P5.1	1	P5.1
7	D1	-	-	-	-	-	-	-	-	-	-
8	D0	-	-	-	-	-	-	-	-	-	-
9	D3	-	-	-	-	-	-	-	-	-	-
10	D2	-	-	-	-	-	-	-	-	-	-
11	D5	-	-	-	-	-	-	-	-	-	-
12	D4	-	-	-	-	-	-	-	-	-	-
13	D7	-	-	-	-	-	-	-	-	-	-
14	D6	-	-	-	-	-	-	-	-	-	-
15	VDD	-	-	-	-	-	-	-	-	-	-
16	VPP	4	RST	28	RST	1	RST	2	RST	15	RST
17	HLS	-	-	-	-	-	-	-	-	-	-
18	RST	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-
20	ALSB/PDB	18	P1.1	11	P1.1	2	P1.1	3	P1.1	4	P1.1

Programming Information of SN8P2600 Series											
Chip Name		SN8P2613P/S/X		SN8P2612P/S		SN8P2612X		SN8P2624			
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment									
Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin
1	VDD	15	VDD	14	VDD	15,16	VDD	2	VDD		
2	GND	6	VSS	5	VSS	5,6	VSS	4	VSS		
3	CLK	7	P5.0	6	P5.0	7	P5.0	6	P5.0		
4	CE	-	-	-	-	-	-	-	-		
5	PGM	18	P1.0	17	P1.0	19	P1.0	10	P1.0		
6	OE	8	P5.1	7	P5.1	8	P5.1	7	P5.1		
7	D1	-	-	-	-	-	-	-	-		
8	D0	-	-	-	-	-	-	-	-		
9	D3	-	-	-	-	-	-	-	-		
10	D2	-	-	-	-	-	-	-	-		
11	D5	-	-	-	-	-	-	-	-		
12	D4	-	-	-	-	-	-	-	-		
13	D7	-	-	-	-	-	-	-	-		
14	D6	-	-	-	-	-	-	-	-		
15	VDD	-	-	-	-	-	-	-	-		
16	VPP	5	RST	4	RST	4	RST	28	RST		
17	HLS	-	-	-	-	-	-	-	-		
18	RST	-	-	-	-	-	-	-	-		
19	-	-	-	-	-	-	-	-	-		
20	ALSB/PDB	19	P1.1	18	P1.1	20	P1.1	11	P1.1		

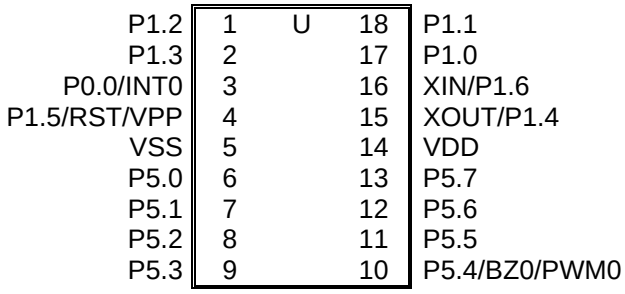
SN8P2600 Series Pin Assignment

SN8P2613P (P-DIP 20 pins)
SN8P2613S (SOP 20 pins)
SN8P2613X (SSOP 20 pins)

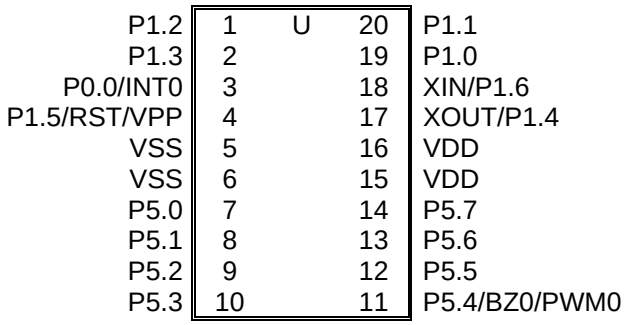


SN8P2613P
SN8P2613S
SN8P2613X

SN8P2612P (P-DIP 18 pins)
SN8P2612S (SOP 18 pins)
SN8P2612X (SSOP 20 pins)

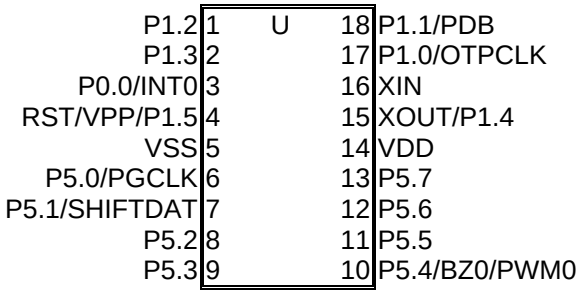


SN8P2612P
SN8P2612S



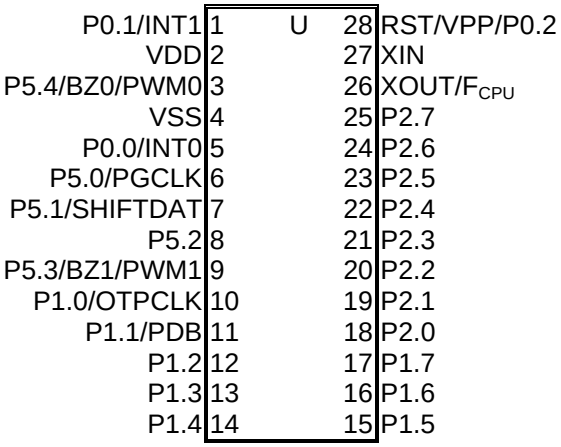
SN8P2612X

SN8P2602AP (P-DIP 18 pins)
SN8P2602AS (SOP 18 pins)



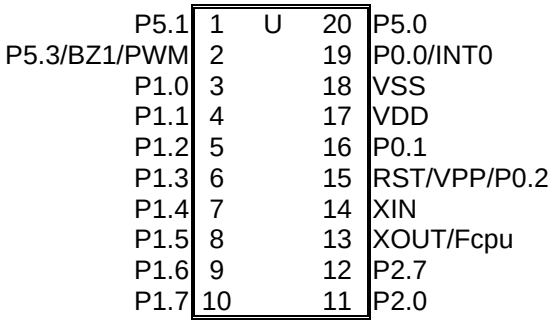
SN8P2602AP
SN8P2602AS

SN8P2604K (SK-DIP 28 pins)
SN8P2604S (SOP 28 pins)
SN8P2624K (SK-DIP 28 pins)
SN8P2624S (SOP 28 pins)



SN8P2604K
SN8P2604S

SN8P26042P (P-DIP 20 pins)
SN8P26042S (SOP 20 pins)
SN8P26042X (SSOP 20 pins)



SN8P26042P
SN8P26042S
SN8P26042X

SN8P2606P (P-DIP 40 pins)

RST/VPP/P4.7	1	U	40	P1.0
P1.1	2		39	P0.7
P1.2	3		38	P0.6
P1.3	4		37	P0.5
P1.4	5		36	P0.4
P0.1/INT1	6		35	P0.3
P1.5	7		34	P0.2
P1.6	8		33	P0.0/INT0
P1.7	9		32	VDD
P4.0	10		31	VSS
VDD	11		30	P2.7
VSS	12		29	P2.6
XIN	13		28	P2.5
XOUT/Fcpu	14		27	P2.4
P4.2	15		26	P2.3
P5.5	16		25	P2.2
P5.4	17		24	P2.1
P5.3/PWM1/BZ1	18		23	P2.0
P5.2	19		22	P5.6
P5.1	20		21	P5.0

SN8P2606P

SN8P2608P (P-DIP 48 pins)
SN8P2608X (SSOP 48 pins)

P1.0	1	U	48	P0.7
RST/VPP/P4.7	2		47	P0.6
P1.1	3		46	P0.5
P1.2	4		45	P4.6
P1.3	5		44	P4.5
P1.4	6		43	P0.4
P0.1/INT1	7		42	P0.3
P1.5	8		41	P0.2
P1.6	9		40	P0.0/INT0
P1.7	10		39	VDD
P4.0	11		38	NC
P4.1	12		37	NC
VDD	13		36	VSS
VSS	14		35	P2.7
XIN	15		34	P2.6
XOUT/Fcpu	16		33	P2.5
P4.2	17		32	P2.4
P4.3	18		31	P2.3
P4.4	19		30	P2.2
P5.5	20		29	P2.1
P5.4	21		28	P2.0
P5.3/PWM1/BZ1	22		27	P5.6
P5.2	23		26	P5.7
P5.1	24		25	P5.0

SN8P2608P
SN8P2608X

SN8P2700A Series

SN8P2700A Series Programming Pin Mapping

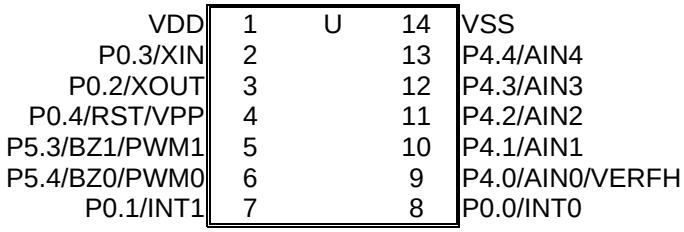
OTP Programming Pin of SN8P2700 Series											
Chip Name		SN8P2704A		SN8P2705A		SN8P2706A		SN8P2707A		SN8P2708A	
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment									
Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin
1	VDD	3,14,24	VDD	4,26	VDD	4,22,36	VDD	1,9,28	VDD	8,16,36,37	VDD
2	GND	7,21	VSS	1,16	VSS	12,33	VSS	17,42	VSS	5,25	VSS
3	CLK	20	P5.0	32	P5.0	31	P5.0	37	P5.0	47	P5.0
4	CE	-	-	-	-	-	-	-	-	-	-
5	PGM	6	P1.0	14	P1.0	7	P1.0	12	P1.0	20	P1.0
6	OE	19	P5.1	31	P5.1	30	P5.1	36	P5.1	46	P5.1
7	D1	-	-	-	-	-	-	-	-	-	-
8	D0	-	-	-	-	-	-	-	-	-	-
9	D3	-	-	-	-	-	-	-	-	-	-
10	D2	-	-	-	-	-	-	-	-	-	-
11	D5	-	-	-	-	-	-	-	-	-	-
12	D4	-	-	-	-	-	-	-	-	-	-
13	D7	-	-	-	-	-	-	-	-	-	-
14	D6	-	-	-	-	-	-	-	-	-	-
15	VDD	3,14,24	VDD	4,26	VDD	3,14,24	VDD	1,9,28	VDD	8,16,36,37	VDD
16	VPP	28	RST	8	RST	40	RST	5	RST	12	RST
17	HLS	-	-	-	-	-	-	-	-	-	-
18	RST	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-
20	ALSB/PDB	5	P1.1	13	P1.1	6	P1.1	11	P1.1	19	P1.1

OTP Programming Pin of SN8P2710 Series											
Chip Name		SN8P2714		SN8P2715		SN8P27142		SN8P27143			
Easy, MP-EZ Writer And Writer V3.0		OTP IC / JP3 Pin Assignment									
Number	Pin	Number	Pin	Number	Pin	Number	Pin	Number	Pin		
1	VDD	25	VDD	30	VDD	12	VDD	13	VDD		
2	GND	15	VSS	20	VSS	6	VSS	5	VSS		
3	CLK	4	P5.0	6	P5.0	17	P5.0	18	P5.0		
4	CE	-	-	-	-	-	-	-	-		
5	PGM	8	P2.0	10	P2.0	2	P2.0	1	P2.0		
6	OE	3	P5.1	5	P5.1	16	P5.1	17	P5.1		
7	D1	-	-	-	-	-	-	-	-		
8	D0	-	-	-	-	-	-	-	-		
9	D3	-	-	-	-	-	-	-	-		
10	D2	-	-	-	-	-	-	-	-		
11	D5	-	-	-	-	-	-	-	-		
12	D4	-	-	-	-	-	-	-	-		
13	D7	-	-	-	-	-	-	-	-		
14	D6	-	-	-	-	-	-	-	-		
15	VDD	25	VDD	30	VDD	12	VDD	13	VDD		
16	VPP	26	RST	31	RST	13	RST	14	RST		
17	HLS	-	-	-	-	-	-	-	-		
18	RST	-	-	-	-	-	-	-	-		
19	-	-	-	-	-						
20	ALSB/PDB	9	P2.1	11	P2.1	3	P2.1	2	P2.1		

OTP Programming Pin of SN8P2711 Series											
Chip Name		SN8P2711P,S		SN8P2711X							
EZ Writer / Writer V3.0		OTP IC / JP3 Pin Assignment									
Number	Pin	Number	Pin	Number	Pin						
1	VDD	1	VDD	1	VDD						
2	GND	14	VSS	16	VSS						
3	CLK	9	P4.0	11	P4.0						
4	CE	-	-	-	-						
5	PGM	13	P4.4	15	P4.4						
6	OE	10	P4.1	12	P4.1						
7	D1	-	-	-	-						
8	D0	-	-	-	-						
9	D3	-	-	-	-						
10	D2	-	-	-	-						
11	D5	-	-	-	-						
12	D4	-	-	-	-						
13	D7	-	-	-	-						
14	D6	-	-	-	-						
15	VDD	-	-	-	-						
16	VPP	4	RST	4	RST						
17	HLS	-	-	-	-						
18	RST	-	-	-	-						
19	-	-	-	-	-						
20	ALSB/PDB	3	P0.2	3	P0.2						

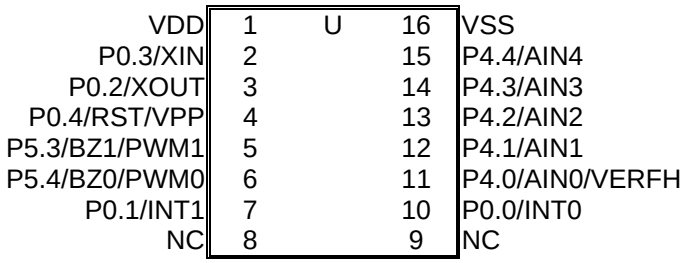
SN8P2700 Series Pin Assignment

SN8P2711P (P-DIP 14 pins)
SN8P2711S (SOP 14 pins)



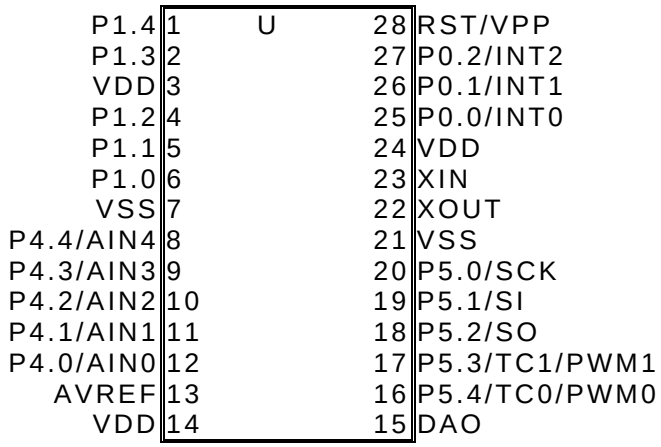
SN8P2711P
SN8P2711S

SN8P2711X (SSOP 16 pins)



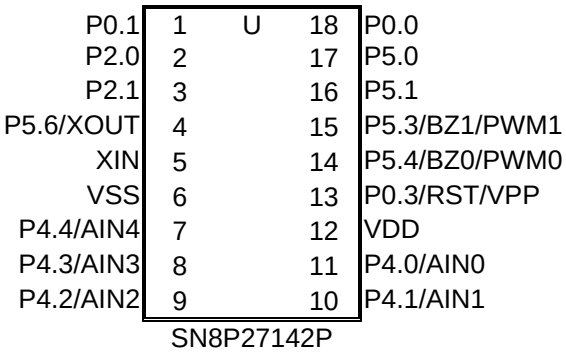
SN8P2711X

SN8P2704A (P-DIP 28PIN)



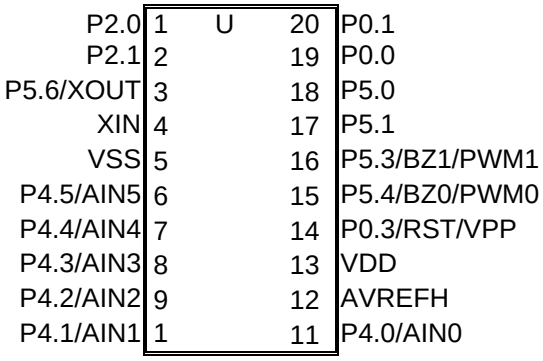
SN8P2704AK
SN8P2704AS

SN8P27142P (P-DIP 18 pins)
SN8P27142S (SOP 18 pins)

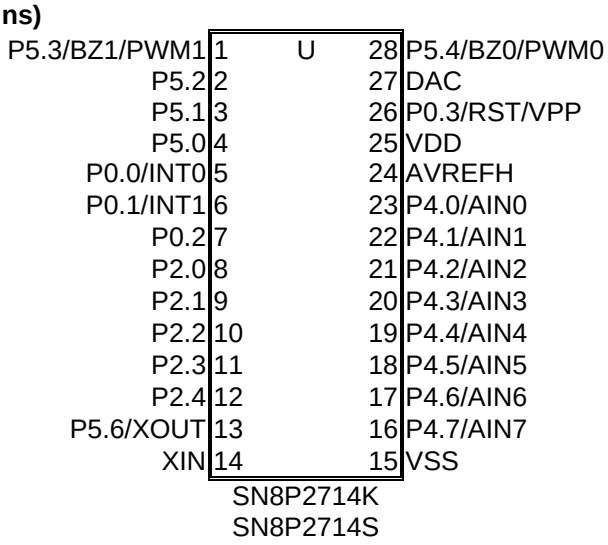


SN8P27142P
SN8P27142S

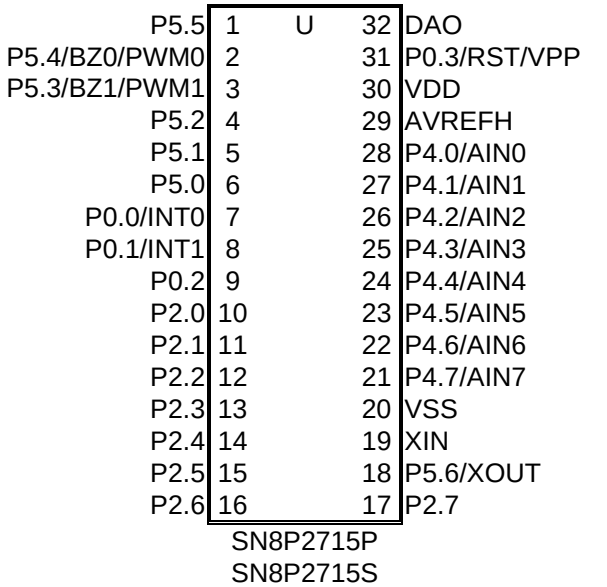
SN8P27143P (P-DIP 20 pins)
SN8P27143S (SOP 20 pins)
SN8P27143X (SSOP 20 pins)



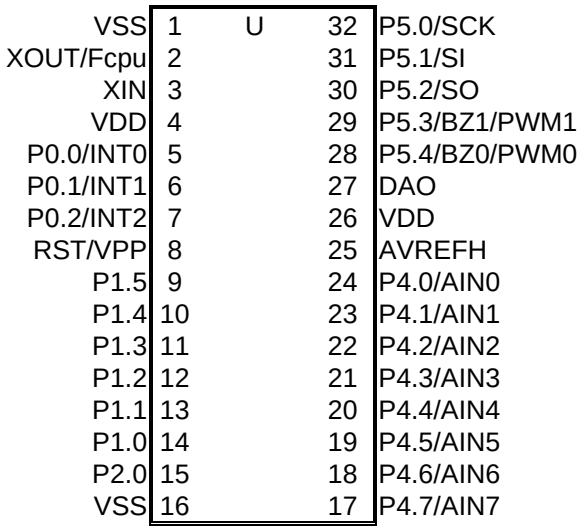
SN8P2714K (SK-DIP 28 pins)
SN8P2714S (SOP 28 pins)



SN8P2715P (P-DIP 32 pins)
SN8P2715S (SOP 32 pins)

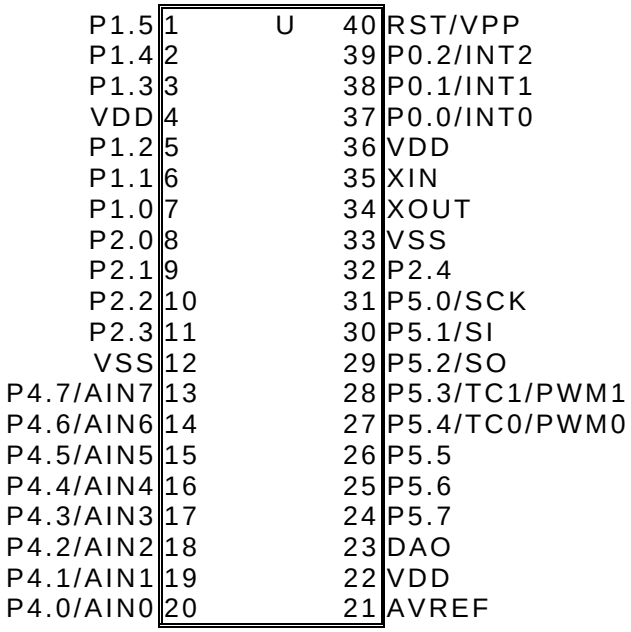


SN8P2705AP (P-DIP 32 pins)
SN8P2705AS (SOP 32 pins)



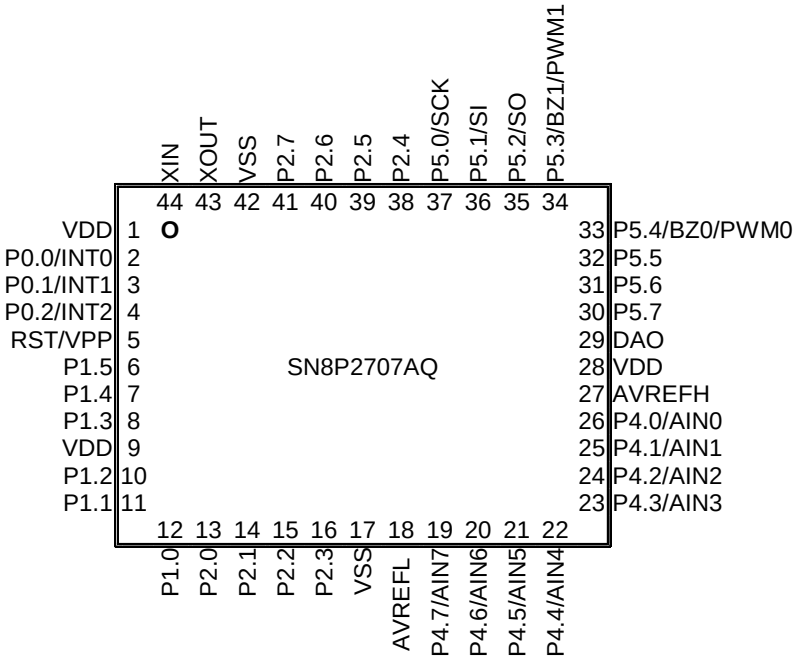
SN8P2705AP
SN8P2705AS

SN8P2706A (P-DIP 40 pins)

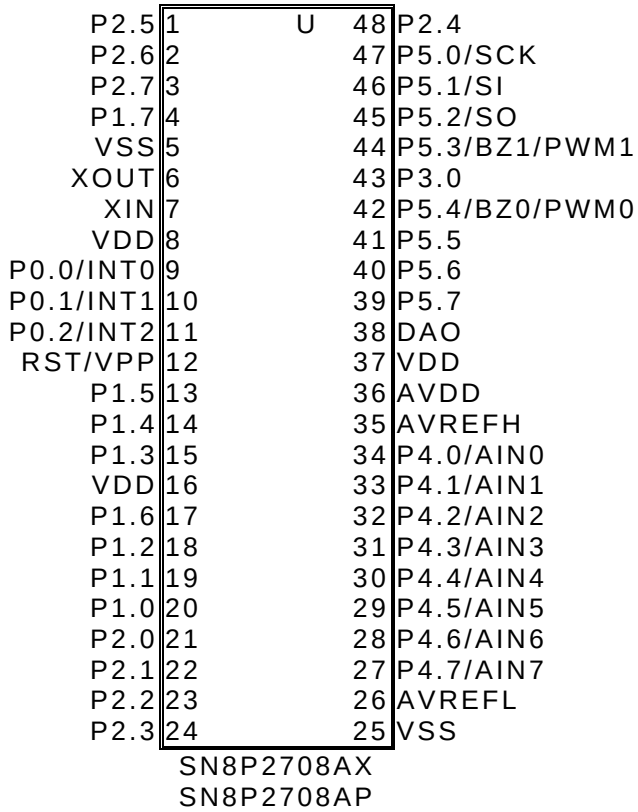


SN8P2706AP

SN8P2707A (QFP 44 pins)



SN8P2708A (P-DIP 48 pins)



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