

**EPROM WRITER CARD  
FOR PC/XT, AT  
INSTRUCTION MANUAL  
(EW:-7 SERIES)**

**IBM PC, PC/XT, PC/AT ARE REGISTERED TRADE MARKS  
OF INTERNATIONAL BUSINESS MACHINES CORP.**



THE NATIONAL ARCHIVES

1900-1909

RECORDS OF THE

EXECUTIVE SECRETARIAT

THE NATIONAL ARCHIVES  
1900-1909

Device type:

8751,8751H

8751,8752H

8744,8744H

V2.0: 2nd released. modified hardware:

1. Pin 16, 17 of 40 pin textool are connected together, and then connected to pin 40 through 10K OHM resister.
2. Put a jumper between pin 16 and 20 (jumper named JP2).

This version can program vpp 12.75V, 2 security bit by selecting 2764A EPROM programmer.

Device type:

8751BH, 8752BH, 87C51

3. Program procedure.

program data bit by closing JP1, opening JP2 (procedure same V1.0 data bit programming).

Program 1st security:

By opening JP1, opening JP2.

Procedure same as V1.0 Data bit programming.

Program 2nd security:

By opening JP1, closing JP2.

Procedure same as V1.0 security bit programming.

4. NOTE: The hardware dose not support encryption table programming, but can be modified by user.

## SUNSHINE EPROM PROGRAMMER V1.0

MODEL: EW-704X (C) 1987

Main Menu:

1. DIR
2. Load BIN file to memory buffer
3. Save memory buffer to disk
4. Edit memory buffer
5. Change I/O base-adr of hardware
6. display loaded file history
- T. Type select 27/87 series
- U. change VPP      G. change MASTER GANG
- Z. modify target Zone
- B. Blank check
- P. Program                      A. Auto
- R. Read master gang              V. Verify
- C. Compare & display master gang
- S. program Speed
- Q. Quit

NOTE: Allocation memory buffer 128 KB Start address at

5016:0000

Select which number? T

### REVISION BOARD:

Some characters will be changed from model to model.  
EPPGM4 in model EW-701 will be changed to EPPGM1.  
EPPGM4 in model EW-708 will be changed to EPPGM8.

for ex: program execution section

Model EW-704: A> EPPGM4 < CR > changed to A>EPPGM1 < CR >

Model EW-708: A> EPPGM4 < CR > changed to A>EPPGM8 < CR >

\* TYPE: x16  
 \* VPP: 25V

\* PGMSPEED: NORMAL  
 \* MASTER GANG: #1

TARGET ZONE	
Buffer start adr	: 00000
end adr	: 007FF
check sum	: 0000
Device start adr	: 00000
	<b>COUNTER</b> 00000

TYPE: 27/87 SERIES

TYPE and DEFAULT VPP table

0. x16	25V	8. x512	12.5V
1. x32	25V	9. x101	12.5V
2. x32A	21V	A. x301	12.5V
3. x64	21V		
4. x64A	12.5V		
5. x128	21V		
6. x128A	12.5V		
7. x256	12.5V		

<CR> back to main menu.

SELECT NUMBER?

8752 : 0000 - 1FFF  
 8744 : 0000 - 0FFF

3.3 Load your ROM CODE BINARY FILE into buffer.

NOTE: If the ROM CODE is INTEL HEX FORMAT file, you have to convert it to be BINARY file by HEXBIN.EXE converter program supplied on the EPROM WRITER disk.

3.4 Program DATA BIT

3.4.1 Jumper JP1 is closed.

3.4.2 Select program function and start programming.

3.4.3 Waiting for VERIFY OK message.

3.5 Program SECURITY BIT

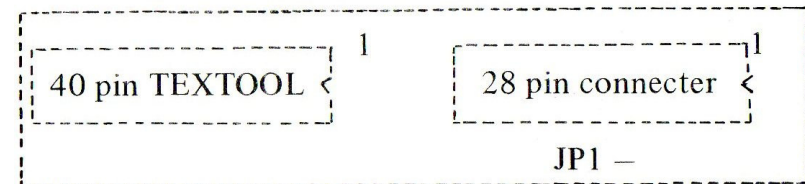
3.5.1 Jumper JP1 is opened.

3.5.2 Select program function and start programming.

3.5.3 Waiting for VERIFY ERROR message.

NOTE: If you try to read out the securitied device, you will find that all data bits is "FF", just like a blanked device.

#### 4.0 Layout of adapter



#### 5.0 Hardware revision

V1.0: 1st released version can program VPP 21 volt.1 security bit by selecting 2764 eprom programmer.

**SUNSHINE ADP-51**  
**8751 series SINGLE CHIP MICROPROCESSOR**  
**PROGRAM ADAPTER V1.0**

**1.0 Installation**

The adapter has a 28 pin long lead IC type connector. The pin-out and dimension of the connector is the same as 2764 type EPROM. Insert the connector into any EPROM WRITER just as insert 2764 type EPROM into any EPROM WRITER, then you can program 8751 series SINGLE CHIP MICROPROCESSOR just like you program 2764 type EPROM.

NOTE: 1. Be care of the direction of connector.  
2. We suggest that you had better use SUNSHINE EPROM WRITER PC/XT/AT add-on card (EW701X, EW704X, EW708X) to program these devices.

**2.0 Type of 8751 series SINGLE CHIP MICROPROCESSOR**

8751,8751H  
8752,8752H  
8744,8744H

All type of 8751 series devices can be programmed by selecting type 2764, VPP 21 VOLT on EPROM WRITER.

**3.0 Program procedure**

3.1 Insert 8751 series device into 40 pin TEXTTOOL on adapter.

3.2 Select EPROM type 2764, VPP 21 VOLT. NORMAL or INTELLEAGENT program speed and select buffer range as follow

8751 : 0000- 0FFF

**Preface**

This documentation describes the operation and detail function of EPROM programmer card (EW-704X, EW-708X).

The supplied disk includes 3 utility files as follow.

1. EPPGM4.EXE –

This is the main file that can be executed.

2. EPPGM4.DAT –

The previous informations will be saved to this file while EPPGM4.EXE is being terminated and will be loaded from this file while EPPGM4.EXE is being executed.

Informations include I/O base address, EPROM type and programming speed.

3. EPPGM4.HLP –

Some new advanced informations not printed on this manual will be added in this file.

\* Do not edit any data of EPPGM4.DAT file by yourself, or something error may be happend.

\* These files have to be on the same disk, and also must be at the default disk driver.

\* Two DOS files (DEBUG.COM, COMMAN.COM) must be put on the same default disk driver. These two files must be prepared by yourself.

## Minimum computer system configuration

1. IBM PC/XT or compatible system with 256K memory one 360K floppy disk driver.
2. PC DOS V2.0 (or greater) or compatible DOS.

## Program execution.

Insert the EPROM programmer card on any slot of the computer, connect the programmer card to the TEXTTOOL box through cable under the power off condition.

Boot your computer system by DOS disk. Put the supplied disk at the default disk driver, put your BIN file (ROM BASE Binary file) on any disk driver, and then key in the following command.

EPPGM4 <CR>

The main menu will be displayed on screen. Then select desired function as you want. Detail function will be described latter.

HAVE A GOOD JOB!

NOTE: be sure to back up 1 copy of the source disk, and save at a safty place.

## 1.0 I/O base address selection

This card can be inserted into any slot of the computer. The I/O base address had been selected to 2A0H. Some problem would happend if other card inserted on the computer had the same address as this card. The way to slove

## A2. Answering one key and answering one line characters:

Most of these function need to be answered by pressing one key only. But some function need to be answered by entering one line characters, such as function 2 (load), 3 (save), Z (modify target zone).

One line characters answer need to be terminated by pressing <CR> after the last character.

If you want to neglect the answer and back to main menu., please press key <ESE>

-----END-----

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Additional Note:

A1. Function "P", "A", "R", "V", "C" not only operate on all contiguous address of buffer, but also operate on Even or Odd address of buffer. The relationship between ALL, Even and Odd address is shown below.

All address mapping: (by pressing key 'Y')

buffer start	+0	=====>	device start	+0
	+1	=====>		+1
	+2	=====>		+2
	+3	=====>		+3
	etc.			etc.

Even address mapping: (by pressing key "E")

buffer start	+0	=====>	device start	+0
	+2	=====>		+1
	+4	=====>		+2
	+6	=====>		+3
	etc.			etc.

Odd address mapping. (by pressing key "O")

buffer start	+1	=====>	device start	+0
	+3	=====>		+1
	+5	=====>		+2
	+7	=====>		+3
	etc.			etc.

this problem is shown below.

- step 1: Turn off the computer power.
- step 2: Select the DIP switch to new I/O address by turning on 1 of the 8 positions. the I/O base address map is shown below.

position = I/O address

1	200H
2	220H
3	240H
4	260H
5	280H
6	2A0H
7	2C0H
8	2E0H

- step 3: Re-insert the card into computer, and executing the program (EPPGM4.EXE). Enter new I/O address (selected by step 2) under function 5.
- step 4: After step 3, the installation is completed.

2.0 Function description

The function menu will be automatically displayed on screen after executing EPPGM4.EXE. The simple way to program the EPROM device for designer is shown below.

- step 1: Prepare your BIN file on disk.
- step 2: Execute EPPGM4.EXE.

step 3: Select function T and Z to indicate the type number and TARGET ZONE of EPROM device.

Select function 2 to load you BIN file into memory buffer.

step 4: Select function P to program the blank device.

step 5: After verifying ok by function P, inserted the device on you prototype product. Then running and debugging all the operation you designed.

step 6: If any error had happened on prototype product You should have to re check your BIN file or hardware of prototype product, then quit from EPPGM4.EXE and go to step 1.

The simple way shown above may be modified to be used by small amount production. (directly start procedure from step 4). Detail function will be described below.

#### function 1: DIR

The files on disk can be displayed. This function invokes the **COMMAN.COM** file. So the **COMMAN.COM** file must be put on the same default disk.

#### function 2: LOAD BIN FILE FROM DISK

Load you binary file by this function. The way you can do is entering the BIN file name to be loaded and memory buffer start address to be loaded to.

#### function C: COMPARE

This function is almost the same as V. except that all error data will be shown on screen.

#### function S: PROGRAM SPEED

There are 5 program speeds can be selected. **NORMAL** 50 ms speed, **INTL** 1 ms intelligent algo., **USER** 0.5 ms retry by user., **NSCMOS** 10 ms NS CMOS normal algo., and **QUICK** 0.1 ms INTEL quick pulse algo.

**NOTE:** If the **NSCMOS** or **QUICK** program algo. is being selected, the program voltage **Vpp** will be internally set to 12.9V.

#### function X: TESTING AND ADJUSTING PROGRAM

This function is not shown on main menu, but can be selected by pressing key "X". The **Vcc** and **Vpp** voltage can be adjusted step by step.

The remaining testing step includes **TEXTTOOL CHIP** select lines test, data lines test and address lines test.

Please follow the test procedure step by step, if you want to test the hardware.

Under main manual selection, enter Q will Quit from EPPGM4.EXE to DOS.

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Please reference the cross-reference of manufacturer and type table from file EPPGM4.HLP

#### function B: BLANK CHECK

This function can be applied on blanking check of incoming devices. EPPGM4.EXE will not damage the device.

#### function P: PROGRAM

Auto verify program data after program complete. So only check the message "verified ok!".

#### function A: AUTO

This function is mostly the same as function P, except that the blank check function is automatically done first, only one key answer is necessary. So this procedure is more quicker than function B with P, and can be used for small amount production.

#### function R: READ

Read the device data into memory buffer for lately used.

#### function V: VERIFY

This is a stand alone device verifier. After programing small amount of device, all devices can be double checked by this function.

Maximum 20 characters can be entered to be the file name  
EX. D: filename.ext <CR>

D: disk drive of filename

filename.ext: as specified by DOS

NOTE: EPPGM4 can also accept path name specified by DOS.

The start address must be in the range between offset 0H and offset 1FFFFH. It is not necessary to enter "H". All digits have to be HEXADECIMAL value.

NOTE: Because the 128 KB memory buffer is dynamically allocated, so the base segment address are different between any computers.

The base segment address will be shown on screen.

#### function 3: SAVE MEMORY BUFFER TO DISK

This function is used seldomly. But if the BIN data is read from other programmed device and the binary data must be saved for later used, this function will do this job.

Entering procedure is the same as function 3, except that the end address in needed to be entered.

#### function 4: EDIT MEMORY BUFFER

The loaded binary map can be displayed, edited by this function. This function invokes the DEBUG.COM file. So the DEBUG.COM file must be put on the same default disk. Please ref. DEBUG.COM manual for detail description.

**function 6: DISPLAY LOADED FILE HISTORY**

The 20 latest loaded file informations will be displayed by this function.

The informations includes file name, start address and end address.

**function U,G:**

Program voltage Vpp select and master gang select. There are 4 Vpp (25V, 21V, 12.5V, 12.9V) can be selected by pressing key "U". The selected Vapp will override the default Vpp.

Any gang can be selected to be master gang by pressing key "B", and master gang message will be shown on upper right corner of screen.

**function Z: MODIFY TARGET ZONE**

The operation address of BLANK CHECK, PROGRAM, AUTO, READ, VERIFY, COMPARE will be referenced to TARGET ZONE area. Buffer starting address, Buffer ending address, Device starting address can be modified by this function.

NOTE: Be sure to check if the range of device is correct every time you change the type number.

The normal range of each device is shown below.

x16	0 ----	7FF
x32	0 ----	FFF
x64	0 ----	1FFF
x128	0 ----	3FFF
x256	0 ----	7FFF
x512	0 ----	FFFF
x101	0 ----	1FFFF
x301	0 ----	1FFFF

**function T: TYPE SELECT**

Approximately all popular types of device have been included here. (up to 1024 kbits) It is easy to select proper type number as you want.

Type table (27/87 series): 16, 32, 64, 64A, 128, 128A, 256, 512, 101, 301.

NOTE: 101: standard 1024k (byte type) EPROM

301: mask ROM 1024k (byte type) pin out EPROM

MFG		TYPE SELECT
=====		=====
HITACHI	27101	101
HITACHI	27301	302
NEC	271001	101
NEC	271000	301
FUJITSU	271001	101
FUJITSU	271000	301
INTEL	27010	101
OKI	271000	101