# ALL-11AE Universal Programmer User's Manual

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## 1. Intruduction

ALL-11AE programmer, works with IBM PC through USB (Universal Serial Bus) port to perform a high-speed data transmission and accurate programming waves. ALL-11AE is embedded with a 1Mbit memory to support the programming capacity for most E(E)PROM, MCU/MPU and PLD. The software automatically uses PC memory If the buffer for the device is over 1 Mbit. This manual contains how to install the system and work under environment of PC with Windows 98/Me/ 2000/XP/2003/Vista/7.

#### **1.1 Programmer and Accessories**

Each ALL-11AE package contains the following standard accessories:

- ALL-11AE programmer.
- An AC power cable, 1.8 M.
- A USB signal cable converting A type to B type; 1 meter long.
- A CD-ROM for Driver Files.
- User's Manual

## 1.2 PC System Requirements

- PC/Pentium above
- Microsoft compatible mouse
- A harddisk with at least 10G byte usable capacity
- A CD-ROM drive with speed x16 or above
- At least one USB port (Version 1.1/2.0)
- Equip 1G byte memory space or above
- Operating System: Windows 98/Me/2000/XP/2003/Vista/7

## 2. Installation

### 2.1 Hardware Installation

One free USB port is needed for the programmer.

#### Step 1:

Connect programmer and PC according to follwoing diagram:



Connect the female B type end of USB cable to the male B type USB connector at the rear panel of programmer, connect the female A type end of USB cable to the male A type USB connector on PC.

### Step 2:

Connect one end of the power cable to programmer, the other end to the outlet of power source. Switch on PC first, then the programmer, signals on LED should show as follows:



If ON LED is not lit as mentioned above, turn off PC and programmer and check the connection between programmer and USB port, then turn on PC and programmer again. If the ON LED is still not lit, please contact your local distributor for help.

If BUSY LED blinks, turn off the programmer, check the connection between programmer and USB port and also check whether USB driver is installed or not. Then re-boot the PC and the programmer. If Busy LED still blinks, there must be a certain h/w of the peripherals conflicting with the USB port.

## 2.2 USB driver Installation

After connecting PC and programmer with the USB cable, switch on the programmer. PC will detect the new hardware and show a message of "Found New Hardware Wizard". Take Windows XP as an example.

**2.2.1** Select "Install from a list or specific location (Advanced)". Click "Next" to continue.



**2.2.2** Select "Search for the best driver in these locations" and "Include this location in the search" to assign the path of USB driver. Click "Next" to continue.



2.2.3 Click "Next" to complete the USB\_DRIVER installation and re-

turn to Desktop for programming software installation.



## 2.3 Software Installation

Insert the CD-ROM to your CD-ROM drive, go to directory of ALL-11AE under File Manager to execute the SETUP.EXE file, or run the SETUP. EXE from START menu of WINDOWS and follow all steps accordingly as follows:



#### **Cautions and Descriptions:**

- Log in with "Administrator" to install the S/W under Windows 2000/XP/2003/Vista/7.
- Use File Manger to check the completion of S/W installation over WACCESS.EXE, individual driver file and other utilities.
   WACCESS.EXE is a main system file that provides an easy way to select IC manufacturer, type and special driver file needed.
   Each single driver file can also be run separately from WACCESS.
   EXE rule. A programming file usually support a series of relevant ICs. For instance, WMEM1.EXE is able to program EPROMs from 2716 to 27C512.
- 3. An automatic self-check over the programmer will work when either a driver file or the option function of WACCESS.EXE is executed. If message shows programmer does not exist, stop all operation and check installation again.
- Two alternatives to check the existence of the programmer: Method 1: Execute "Option" function under WACCESS menu Method 2: Execute selected driver file under WACCESS menu





## Method 1: Execute "Option" function under WACCESS menu

Select "WACCESS" under File Manager or press "Start" and "program files" then click "Programmer" to evoke the following display.



Click "I/O Base Address" under "Option" to evoke the following display:



The I/O Base Address set for current S/W will show on the screen, the system will then check the existance of programmer automatically. When "Programmer Status: Exist" appears, the H/W installation is completed.

When "Programmer Status:Not Exist" message appears, the failure could be caused by following 3 reasons:

- 1. Poor cable connection between programmer and PC USB port.
- 2. Programmer is powered off.
- 3. The USB driver is not installed correctly.

Following Steps will guide you to find the cause.

- 1. Make sure the green LED is lit when powered on.
- 2. Check if cable firmly connected between programmer and USB port of the PC.
- 3. If the USB port setting is not working, please ensure the PC's BIOS setup has USB Controller enabled.

#### Method 2: Execute selected driver file under WACCESS menu

When manufacturer and type info are entered for each IC, the driving file will be automatically called by WACCESS. You can also execute the driver file without going through WACCESS.

Take WMEM1.exe, a file for programming EEPROM, as an example. When WMEM1.EXE is executed, it will search for WMEM1.DAT first. If the file is in the default disk, all its parameters including manufacturer, type will be loaded as default value.

Execution of a driver file includes H/W checking. When all checks are passed, the system is ready for programming and the main menu will appear as follows:

WMEM1 EXE	
File Edit Device Operation Setup About	
Read Auto Blank Program Yenfy Compare	
Programmer Status	
Device	
Mfr.: AMD	
Type: AM27C010	
Adaptor : NONE	
I/O base addr. USB	
Target Zone (Byte Wide)	
Device Start: 00000000 Device End 0001FFFF	
Buffer Start : 00000000 Buffer End : 0001FFFF	
Buffer Checksum - 0000	
Duffer Chebra ( DC Marrier )	
Builet Status . FC Melliory Builet Size(Bytes) 2040K	



When an error message as above appears, it may be due to:

- 1. The programmer is switched off
- 2. The PC's BIOS setup has USB controller disabled.

When the error remains after checking, you may further try:

- 1. Back to programming main menu by pressing OK key, then select "I/O SETUP" via "SETUP" menu and make sure the "Programmer Status: Exist" appears.
- 2. Use another USB cable or use another USB port of PC.
- 3. If fail, please contact your local dealer.

## 3. Operation

## 3.1 Starting the system

A brief introduction about how to enter WACCESS, the main program, and proceed other relavent functions like Device selection, Data loading, blank check and programming etc. will be presented below. Take AM27C010 as an example.

### 3.1.1 Begin with WACCESS

Click the icon of WACCESS to activate WACCESS.EXE and get following display on the window.



## 3.1.2 Select IC manufacturer

Click "Device" to display all IC manufacturers for selection. Click "AMD" and press OK key to display the menu of IC groups and types of the selected manufacturer.

8748-series	🐨 ASD	<b>WECHELON</b>	🐨 GTK	🙂 ITT
ACTRANS	ASLIC	😨 EFST	😨 HANBIT	😯 LAT
🞯 AKM	😵 AT&T	😵 EMC	😵 HARRIS	😵 LG 🧐
🎯 ALI	🎯 ATC	😨 EMTC	🎯 HITACHI	😗 LINK
ALLIANCE	😚 ATMEL	😨 EON	📀 HOLTEK	😌 LINV
🚱 ALTERA	🚱 BIFORST	😚 ESMT	😌 HYNIX	😌 LYO
AMD	😵 BMI	😵 EXCELSEMI	🚱 HYUNDAI	😵 M-SI
🚱 AMI	😵 BOWMAR-WHITE	😵 EXEL	😌 ICE	😵 M.te
🚱 AMIC	😵 CATALYST	😵 FAIRCHILD	😵 ICSI	🌍 MAG
AMIC(KOREA)	😵 CENTURY	FREESCALE	😌 ICT	😵 MAT
ANACHIP	😵 CERAMATE	😯 FUJITSU	😵 IDT	😵 MEG
😚 ANALOG	😵 CYPRESS	😨 GENCORE	🛞 IMT	😵 MICI
APLUS	😵 DALLAS	😨 GOAL	😵 INFINEON	🎯 MICI
😌 ART	😨 DEUTRON	😨 GOULD	🞯 INTEL	😵 MICI
🚱 ASAHI-KASEI	🞯 DynaColor	😨 GSSP	🎯 ISSI	😗 MITS
<				>
	🗸 ОК	🗙 Cancel		

## 3.1.3 Select IC group and type

For this default example, you may click "EPROM" on the left side and then search and click the desired type in the right side menu followed by clicking <Run> key.



After the execution of <Run>, WACCESS file will automatically activate all related functions to get WMEM1.EXE ready for execution.

You may also run a specific driver file directly without going through WACCESS. You can select all parameters in its main menu by first clicking "Device" function, then followed by other selections as following diaplay.

🧑 WMEMI.EXE	
File Edit Device Operation Setup About	
Read Auto Blank Program Yerify Compare	
Programmer Status	
Mfr.: AMD	
Type: AM27C010	
Adventure NONE	
Adaptor . NONC	
I/O base addr. USB	
Target Zone (Byte Wide)	
Device Start: UUUUUUUU Device End UUU1FFFF	
Buffer Start : 00000000 Buffer End : 0001FFFF	
Buffer Checksum : 0000	
Buffer Status : PC Memory Buffer Size(Bytes) 2048K	

Main Menu of the Driver File

The main menu of programming file contains three vital parts: the first row for main functions, the second row for quick function keys, and the rest provide detailed programming parameters about the selected IC, that include manufacturer, type, ADAPTER required and current I/O Base Address, etc.



#### Remark:

When you change manufacturer and IC type, all data in parameter window will be updated as well. The update includes downloading the relevant driver file to programmer. If a message "XXXX not found" appears, check the missing of the installation and the existence of file in the CD-ROM, and if necessary, ask your local dealer for assistance or download the file from our website.

### 3.2 Load disk file into buffer

It is ready for IC programming after selecting IC manufacturer and type. You may use either of the two sources, one is a compiled/ assembled file saved in a disk, the other one from a master IC. This section explains the former way of downloading a compiled/assembled file into buffer. When you click "Load file to programmer buffer" from "File" menu, the screen will display as follows:

Look in:	TEST			- 🗧 🖆 📰 -	
	Name 🔺	Size	Туре	Date Modified	1
	Chi_090328	1 KB	File	10/17/2007 9:03 AM	
My Recent	Chi_090720.s19	9 50 KB	S19 File	8/26/2004 9:07 AM	
Documents	🔂 Chi_090906	64 KB	<b>BIN File</b>	6/18/2008 9:09 AM	
	🔂 Chi_091220	64 KB	BIN File	10/17/2007 9:12 AM	
	🖬 Chi_091244	64 KB	BIN File	10/17/2007 9:12 AM	
Desktop	🔂 Chi_091302	32 KB	BIN File	10/17/2007 9:13 AM	
	🔂 Chi_091414	8 KB	BIN File	4/23/2007 9:14 AM	
	🔂 Chi_091436	64 KB	BIN File	10/17/2007 9:14 AM	
Mu Documents	🛅 Chi_091456	32 KB	BIN File	10/17/2007 9:14 AM	
ny booanonto	🗟 Chi_093714.HE	X 4 KB	HEX File	7/15/2008 9:37 AM	
-	🖬 Chi_094742	512 KB	BIN File	9/17/2007 9:47 AM	
	🖬 Chi_094940.he	x 23 KB	HEX File	10/18/2007 9:49 AM	
My Computer	🖬 Chi_100834.he	x 5KB	HEX File	11/24/2004 10:08 AM	
		27.00	DTAI Cilo	6/10/2000 10.10 AM	
	File name:	Chi_155142		·	Open
Mu Network	Files of type:	All Files(* *)		-	Cancel

This function and its operation are similar to loading function under windows environment. Enter the file name to be downloaded and click Open, then the data file will be load to the buffer of the programmer.

#### Caution: Disk driver and path must be correct

Select and click the correct driver and folder that the file is located. If it cannot be operated by mouse, you may apply <TAB>, <UP>, <DOWN> and <ENTER> keys, then select a format in "File Format" window and start loading.

 $\stackrel{\wedge}{\bowtie}$  After loading a file, go to "Edit Programmer Buffer" under "Edit" menu to make sure all data are correctly loaded before programming.

## 3.3 Read contents from Master IC to buffer

When programming data is stored in a Master IC instead of a disk, you may press "R" key on the keyboard or click the "READ" button on screen to read data from the Master IC and transfer it to Programmer Buffer. The screen show as follows:

🦏 wmem1.exe		
<u>File Edit Device Operation Setup</u>	About	
Read Auto Blank Pr	ogram Yenify Compare	
Programmer Status	vice	
Mfr.: AMD	Read Device	
Type: AM27C010	Counter:	
Adaptor : NONE	Message:	
I/O base addr. USB Target Zone		
Device Start: 00000000 Buffer Start: 00000000	Run Close	
Buffer Checksum : 0000 Buffer Status : PC Memory	if you use even or odd mode,the buffer will automatically expand to 2 times the device size .	

 $\stackrel{\wedge}{\curvearrowright}$  Note: If the Master IC is secured/locked/encrypted, you can't read out correct data from it.

When inserting Master IC ont socket, make sure pin 1 orientation and pin count positioning is correct as the diagram indicated below.



Click "**Run**" on screen or press "**Y**" key on keyboard or press "**YES**" key on programmer to start the function. As the function is in process, the following message shows up on screen.

### **Reading Now**

When **OK!** message appears, the reading function is complete. Click "Close" button or press <ESC> key to return to main menu.

## 3.4 Insert a Blank IC into the socket

When programming data is read either from programmer buffer or Master IC, it is ready for programming operation. Insert a blank IC onto socket, press "B" key on keyboard before programming to blank check the IC before programming.

## $\stackrel{\text{tr}}{\curvearrowright}$ Attention!

Incorrect IC positioning may cause IC damage or IC is programmed to an unknown state.

## 3.5 Program buffer contents to IC

Insert IC to be programmed onto socket, click "Program" from the menu or press "P" key on the keyboard to evoke the following display.

S WMEMI EXE	
File Edit Device Operation Setup About	
Read Auto Blank Program Yerify Compare	
Programmer Status	
Mfr. : Counter:	
Type : 🔽 Program	
Adaptor : 🔽 Verify	
VO base add	
Device Start :	
Buffer Start : Close	
Buffer Checksum : 0000	
Buffer Status : PC Memory Buffer Size(Bytes) 2048K	
	1.

Then click "Run" button or press "Y" key on keyboard or "YES" key on the programmer to begin the programming on the blank IC. Data will be verified automatically after the programming, that is to make verification on what read out from IC with that in buffer of the programmer. The "OK" LED will be lit to show a successful verification.

For next IC programming you need to wait till the "BUSY" LED goes off, then replace the IC on socket with a blank one and repeat all required programming procedures. Click "Close" button or pres <ESC> to go back to main menu.

## 3.6 Expansion ADAPTERs and CONVERTERs

Adequate ADAPTERs and CONVERTERs are available to support various IC types and packages in market, such as PLCC, SOP, TSOP, QFP, PGA,SON, BGA, etc.

#### ADAPTER:

Each ADAPTER has 40 pins connected in DIP layout which can be inserted onto the 40-pin socket on the programmer. Each ADAPTER has one or more programming files to load to the same directory as WACCESS.

### CONVERTER:

CONVERTERs support the conversion from DIP package to others like PLCC, SOP, TSOP etc. In application, no extra programming file is needed because it is only a simple pin conversion.

### 3.6.1 ADAPTER and CONVERTER installation

#### S/W Installation:

Copy the S/W attached with ADAPTER to the same directory as that for WACCESS file.

### H/W Installation:

Insert ADAPTER or CONVERTER onto the 40-pin DIP socket on the programmer and lock it. See the diarams below.



Before insertion



After insertion

## 4. Utilities

Some functions such as Hex to Binary file converter, Binary to Hex file converter, etc. are provided in the Utility function. They are described as follows:



### 4.1 Hex to Binary Converter

Utility			
-HEX to Binary Co	onverter		
PATH: C:\Prog	ram Files L		
Input Hex File :			😂 Browse
Output Bin File :			
HEX Format :	Intel 💌	Unused Byte	
Ctart Balances	00000	• 00H	○ FFH
Start Address :	00000		
End Address :	FFFFF	🔀 <u>S</u> tart	<u><u> </u></u>
	0%		

- (1) Input Hex File: Type the directory/name of a HEX format file to convert to a Binary file or click "Browse" to select an input file.
- (2) Output Bin File: Type the directory/name of your output binary file converted from the HEX file and have it saved.
- (3) File Format: Select the desired HEX format as Intel HEX 16, Intel HEX 32, Motorola HEX, etc.
- (4) Start Address: Type the initial address of the HEX file.
- (5) End Address: Type the end address of the HEX file.
- (6) Unused Byte: In case some HEX format files may not have consecutive data, select the unused data (00H or FFH) to fill in the inconsecutive area when you convert the file to Binary format.

#### 4.2 Binary to Hex Converter

🖬 Utility		
Binary to HEX Converter		
Path: C:\Program Files\		
Input BIN File:		
p.		<u>Diomse</u>
Output HEX File:		
File Format:	Intel HEX 16	
Input BIN File Start Address:	00000	Start
	1	
Output HEX File Start Address:	00000	
	0%	
<u></u>		

- (1) Input BIN File: Type the directory/name of a binary file to convert to a HEX file or click "Browse" to select an input file.
- (2) Output HEX File: Type the directory/name of your output HEX file converted from the BIN file and have it saved.
- (3) File Format: Select the desired HEX format as Intel HEX 16, Intel HEX 32, Motorola S1, Motorola S2, or Motorola S3.
- (4) Input BIN File Start Address: Type the initial address of the BIN file.
- (5) Output HEX File Start Address: Type the initial address of the HEX file to be converterd from the BIN file.

### 4.3 Two-Way Splitter

The function splits one file into two ouiput files. One contains oddbyte data of the original file and the other contains even-byte data.

🖬 Utility	
2-way splitter	
Input File :	
	Browse
Output File :	
Even:	
Odd:	
Split Data Format Split in Byte Wide	○ Split in Word Wide ○ Split in Dword Wide
X Start	
	0%

- Input File: Type the directory/name of a binary file to split or click "Browse" to select an input file.
- (2) Output File: Type the directory/name of the splited file with even-byte and odd-byte data.
- (3) Split Data Format: Normally the split data are in Byte Wide mode, i.e. one byte wide is the unit of data split, but you can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data split.

#### 4.4 Four-Way Splitter

This function splits one file into four output files. The splitted  $1^{st}$ ,  $2^{nd}$ ,  $3^{rd}$  and  $4^{th}$  files correspondingly contain the  $1^{st}$ ,  $2^{nd}$ ,  $3^{rd}$  and  $4^{th}$  bytes of every 4-byte data segment of the original file.

🗊 Ttility
4-way splitter
Input File :
Browse
Output File :
1st:
2nd:
3rd:
4th:
Split Data Format ● Split in Byte Wide ○ Split in Word Wide ○ Split in Dword Wide
X Start
0%

- Input File: Type the directory/name of the binary file which you want to split or click "Browse" to select the input file.
- (2) Output File: Type the directory/names of the splitted files with the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> bytes of each 4-byte segment.
- (3) Split Data Format: Normally the split data are in Byte Wide mode, i.e. one byte wide is the unit of data split, but you can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data split.

#### 4.5 Two-Way Shuffler

This function combines two input files into one. One of the input files is called Odd Data Input File, data of which are inserted into odd byte position of the combined file. The other is called Even Data Input File, data of which are inserted into even byte position of the combined file.

Utility	
2-way shuffler	
Output File :	
	Browse
Input File :	
Even:	
<ul> <li>Shuffle in Byte Wide C Shuffl</li> </ul>	e in Word Wide 🔿 Shuffle in Dword Wide
🔀 <u>S</u> tart	
	0%

- (1) Output File: Type a directory/name of the binary file that is going to be generated and save it or click "Browse" to set the path.
- (2) Input File: Type the directory/name of the input file whose data to be inserted to each even-byte and odd-byte position.
- (3) Shuffle Data Format: Normally shuffled data are in Byte Wide mode, i.e. one byte wide is the unit of data shuffle, but you can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data shuffle.

#### 4.6 Four-Way Shuffler

This function combines four files into one. The  $1^{st}$ ,  $2^{nd}$ ,  $3^{rd}$  and  $4^{th}$  input files insert data into respective positions of the  $1^{st}$ ,  $2^{nd}$ ,  $3^{rd}$  and  $4^{th}$  bytes of every 4-byte data segment in the combined file.

Utility	
4-way shuffler	
Output File :	
	Browse
Input File :	
1st:	
2nd:	
3rd:	
4th:	
Shuffle Data Format Shuffle in Byte Wide C Shuffle in Word Wide C Shuff	ile in Dword Wide
X Start	se
0%	

- Output File: Type the directory/name of the combined binary file which you want to save or click "Browse" to set the directory.
- (2) Input File: Type the directory/names of the 1st, 2nd, 3rd and 4th files whose data to be inserted respectively to the 1st, 2nd, 3rd and 4th bytes of each 4-byte data segment.
- (3) Shuffle Data Format: Normally shuffled data are in Byte Wide mode, i.e. one byte wide is unit of data shuffle, but you can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data shuffle.

## 5. Job Function

The Programmer driver contains three special functions under the "File" dropdown menu: Load Programmer Configuration, Save Programmer Configuration, and Enable Job Function.

#### a) Save Programmer Configuration

This feature allows you to save all settings selected in the software driver, including:

- 1. Mfr. & Type selections
- 2. Load File setting
- 3. Target Zone settings including Device Start, Device End, Buffer Start, & Buffer End
- 4. Other programming settings
- 5. Auto function settings

After all settings have been entered including Auto Function section, select the Save Programmer Configuration under the "File" dropdown menu and type the filename you want to save.

#### b) Load Programmer Configuration

After saving the configuration information settings using the Save Programmer Configuration command, you may then use the Load Programmer Configuration to load the desired configuration into the software driver. You select the Load Programmer Configuration under the "File" dropdown menu and then choose the filename of the configuration data you want to setup. The software will automatically load the programming data (note: not all software contains Target Zone data).

The "Auto" function will also reinstall all the settings used for the previously programmed device. After completing data entry to the Load Programmer Configuration window, user only need to select the "Auto" function to begin programming.

#### c) Enable Job Function

This function allows user to enable or disable Job Function. After clicking the Enable Job Function block, a check mark appears by its side, any previously saved programmer configuration can be easily installed. The next time the program software driver is executed, a file selection window will automatically appear so that you can select the programmer configuration file you want to use. This function will then automatically open the Auto function window for your convenience. User may also install a short cut to the programmer driver software in the Startup directory of Windows so that the driver will automatically start when your PC is turned on and Windows is started.

WMEMI.EXE	
File Edit Device Operation Setup	About
Load File to Programmer Buffer	
Save File from Programmer Buffer	ogram Verify Compare
Load Programmer Configuration	
Save Programmer Configuration	×
	VICE
<ul> <li>Enable Job Function</li> </ul>	
Exit	
Type: AM27C010	
Adaptor: NONE	
Adaptor: NONE	
I/O base addr. USB	
Target Zor	e (Byte Wide)
Device Start : 00000000	Device End 0001EEEE
Buffer Start : 00000000	Buffer End : 0001FFFF
Buffer Checksum : 0000	
Buffer Status : PC Memory	Buffer Size[Bytes] 2048K
Enable/Dirable Job Eurotion	
English habis 300 1-0000000	

## 6. Serial Number Function (Serialization)

When using the Serial Number function on ALL-11AE, its setup functions and limitations are as follows:

1. Press S/N Setup button in the "AUTO" window to setup the Serial Number programming.

2. Serial Number On/Off:

This function can be selected to enable or disable the Serial Number function (The Serial Number function is only available in the "AUTO" mode.)

3. Length:

This function sets the length of the serial number. It can be up to 8 bytes (16 digits) long.

4. Display Format:

This function selects the display format of the serial number, either HEX (Hexadecimal) or BCD (Binary Coded Decimal).

5. S/N Start Address:

This function is used to set the starting memory address for serial number programming.

6. Start Serial No.:

This function is used to set the starting value of the serial number.

7. Direction:

This function is used to specify the sorting order of the serial numbers either from low to high (Low Byte) or high to low (High Byte).

8. After each programming, the serial number will automatically increase by one for next programming.

9. Not all the programmer software can use the Serial Number function (ex: PLD software can not support this function.)

10. The serial number setting for Microchip PIC series devices is different from other devices. Its high byte data of serial number locations is fixed (12 Bits device is 08H. 14 Bits device is 37H, 16 Bits device is B6H).

For example, if the user selected serial number is "1234ABCD" then data will be programmed from the beginning of the serial number start address and its data will be formed as follows: Programmed data to PIC16C54 (12 Bits) is 0812H 0834H 08ABH 08CDH Programmed data to PIC16C62 (14 Bits) is 3712H 3734H 37ABH 37CDH Programmed data to PIC17C42 (16 Bits) is B612H B634H B6ABH B6CDH 11. The following is an example of the Serial Number Function:

Serial Number	
Serial Number:	• ON C OFF
Length:	8 (1-8 Byte)
S/N Start Address:	00000100
Display Format:	
Start Serial No.:	000000000012345 In HEX
Direction (MSB in):	🖲 Low Byte 🔿 High Byte
ОК	Cancel

🕼 WMEM1.EXE			
<u>File Edit Device</u>	Operation Setup About		
Read Auto	Auto		
Pro monte Sta	Mfr. : AMD Type : AM27C010		
Flogrammer su	Serial No. : 000000000012345 S/N Start Address: 00000100		
Mfr.	Counter :		
Туре	□ ID Check		
Adaptor			
I/O base ad	✓ Blank check		
Device Star	I Program I Verify		
Buffer Start			
Buffer Check			
Buffer Status	C C Pormal C Even C Odd		
	Run         Close         Sector Setup         S/N setup		
	if you use even or odd mode , the buffer will automatically expand to 2 times the device size .		

## 7. Glossary

#### 7.1 EPROM, EEPROM, PROM and MPU

#### Programmable DEVICE :

An integrated circuit (IC) that will be programmed or copied.

#### ■ Bit, Nibble, Byte, Word and Double word :

- Bit : A basic unit of Binary data.
- Nibble : A group of 4-bit Binary data.

A nibble's value ranges from 0H to FH.

- Byte : A group of 8-bit Binary data. A byte's value ranges from 0H to FFH.
- Word : A group of 16-bit Binary data. A word's value ranges from 0H to FFFFH.

**Double Word** : A group of 32-bit binary data.

A double word's value ranges from 0H to FFFFFFFH.

#### ■ Buffer :

A block of memory inside the programmer allocated by the device driver file. The working buffer is used by the device driver file as an intermediate storage. When you want to program a data file to a DEVICE, you first load the file to the working buffer. The contents in the working buffer are then programmed to the target DEVICE. When you read the contents of a master DEVICE, the data is stored in the working buffer, that can then be edited or saved to disk for future reference.

#### ■ Buffer Start and Buffer End Addresses:

The buffer start and end addresses are offset addresses specified from the base address of the Working Buffer. The data stored between the buffer start and buffer end addresses contains the sub-set of the programmer memory buffer is to be programmed to a target device. This is also the area of the buffer for CheckSum calculations.

#### ■ CheckSum:

This is the sum of all data contents between buffer start and end addresses. All data are added byte by byte and then the least significant 16 bits (4 HEX characters) are displayed as the checksum. Some bytes in the address range may not be added to the checksum as specified by the manufacturer of the particular DEVICE. CheckSums will be calculated during DEVICE reading, file loading, type changing or after buffer editing.

### Bit count of the data:

NIBBLE width is 4. BYTE width is 8. WORD width is 16. Double Word has a width of 32. The bit count of MPU is usually 8 or 16, but is also available in 12, 14, or other counts as device type varies.

#### Device Start and Device End Addresses:

The DEVICE start and end addresses are offset addresses specified from the base address of the DEVICE. Data stored at the buffer start address in the working buffer will be programmed to a DEVICE beginning at the Device Start Address location.

#### NOTE :

In order to get correct programming data, some device files forbid users to change the address settings for Buffer Start, Buffer End, Device Start, and Device End.

#### ■ I/O Address :

This is the I/O port select for the USB port .

#### ■ Security Fuses:

Security fuses are present in many programmable devices. When a security fuse is programmed the data stored inside the device can not be read out correctly for reverse engineering purposes. Generally a device will be read as blank if the security fuse is blown. The device will operate functionally equivalent with the security fuse intact or blown.

#### Remark:

Please check with your data book before programming the security fuse of a UV erasable(windowed) device because some UV erasable devices can not be programmed again once the security fuse is programmed.

#### ■ Lock Bits:

Some microcontrollers use lock bits in place of a single security fuse. Usually you have the option of selecting to program one lock bit or all lock bits to provide different levels of code protection. The definition of these bits varies from manufacturer to manufacturer. Please consult the data book of your target device for more details. For some devices like Microchip PIC series devices, if the Lock Bits in the data file are set, the checksum will be different.

#### ■ Encryption:

Some MCU/MPU are encrypted for protection. For a programmed IC that has been encrypted, a correct decrytion code must be given in order to read correct data.

#### Protection Fuses:

Some FLASH based memory devices have protection fuses. A Protection fuse is used to protect a sector of memory in the FLASH device from being accidentally programmed or modified by the target hardware where the device will be installed. This fuse must be reset by a specific series of procedures before the data in the particular sector can be programmed or changed to new values. Protection fuses are only programmed using the separate "Protection" function or the "Auto" function.

## 7.2 PLD, PAL, GAL, PEEL, CPLD, EPLD and FPGA

#### Programmable Logic Device (PLD):

Generally speaking, a device that can be programmed to perform many different logic operations is a PLD. PLDs are usually grouped into following five categories:

- **PLD** : A one time programmable logic device such as a PAL device.
- EPLD : A UV erasable PLD such as a EPLD, CPLD, or FPGA device. These devices contain a transparent window on top for UV light exposure.
- **EEPLD**: An electrically erasable PLD such as a GAL, PEEL, CPLD, or FPGA device.
- **CPLD** : A more complex PLD device.
- **FPGA** : Field programmable gate array.

#### ■ JEDEC Fuse Map File of a PLD Device:

The JEDEC fuse map file is the standard format which can be loaded to a programmer for programming PLD's. It contains fuse information(Blown/Intact) and the Function Test Vectors of the PLD(optional). Most PLD assemblers or compilers, such as the PALASM, OPAL, CUPL, ABEL, AMAZE and PDK-1, can produce a JEDEC fuse map file.

#### ■ POF fuse map file for PLD devices:

The POF fuse map file is a format used for programmable logic devices from Altera Corporation. POF files store programming fuse data for larger devices in a more compact way.

#### ■ Fuse Blown and Intact:

A new programmable device generally comes with all fuses in an intact state (i.e. logic 1 or blank state). The designer can only blow an Intact fuse into a Blown state i.e. logic 0 state. The initial state of some devices may be opposite to this depending upon the device manufacturing method. For those one time programmable(OTP) devices you cannot change the state of a fuse back to the unprogrammed state once it is blown (programmed). UV erasable devices come with windows. When the window is exposed to UV light long enough the fuses will be erased to its initial blank(or unprogrammed) state. Other devices are electrically erasable and can be erased by using an ERASE function on the Programmer.

#### ■ Array Fuses & Configuration Fuses:

Array fuses are the main logic fuses in a PLD. Different arrangements(Blown/Intact) have different logic functions. Configuration fuses indicate the I/O architecture of the PLD, such as Combinatorial/Registered, Output Feedback/Output Enable. Generally, the user do not have to know the exact details of these fuses because the logic compiler used to translate your logic statements and equations into a JEDEC fuse map or another format for programming into a device will specify the value of these bits.

#### Security Fuses

Security fuses are present in many PLD devices. When the security fuse is programmed the data stored inside the PLD can not be read out correctly for reverse engineering purposes. Generally a device will be read as blank if the security fuse is blown. The device will carry on all functions and disregard the security fuse is intact or blown.

## Appendix

#### Troubleshooting

For problems with individual functions please refer to the specific function description under the Function Reference Guide.

#### Problem 1

My operating system is Windows 2000/XP/2003/Vista/7. I can not install the programmer with the USB port.

#### Resolution

Please note when you install the software under Windows 2000/XP/ 2003/Vista/7 or above, you must be logged on as an Administrator first.

#### Problem 2

When I try to run a driver file, I get communication error messages.

#### Resolution

- 1-1 You may not have the USB port set correctly for your programmer. Double check the I/O port assignment.
- 1-2 There may be a bad connection between the USB port due to a faulty cable. Double check the cable connection.
- 1-3 You must set the USB controller enabled in your PC's BIOS setup.

## Problem 3

I get various programming errors in a programming cycle.

### Resolution

- 2-1 Check if these devices are inserted in the ZIF socket correctly.
- 2-2 Check with your distributor to make sure you have the latest version of file.

Eight things to do before calling your dealer:

- 1. Reboot the computer and try again.
- 2. Repeat all the steps, following the instructions in this manual.
- 3. Close all other programs running under windows.
- 4. See if your problem is listed in the Trouble-Shooting section.
- 5. Try it on another system.
- 6. Compare system requirements with your configuration.
- 7. Ask your in-house specialist (every office has one).
- 8. Consult the person who installed the product if available.

### General Troubleshooting Checklist

If your problem is not as such described above, check the followings:

- 1. Is the USB port interface card fully seated in its slot?
- 2. Are all cable connections securely fastened?
- 3. Is the setting on the USB port correct?

### Web Support

If you wish to get updated software, please download the EXE and WPROG.DEV files from our web site, http://www.hilosystems.com. tw. You can then copy them to the desired directory.