1. Introduction

This manual describes how to install and operate ALL-100A/AP/AG Programmer under environment of PC Windows 2000/XP/Server 2003/ Vista/7. ALL-100A/AP/AG Programmer works with PC through USB 1. 1/2.0 (Universal Serial Bus) to perform high speed data transmission. The high-speed processor in programmer precisely controls programming timing and flow, this ensures accurate programming waveforms always generated on ALL-100A/AP/AG.

ALL-100A/AP/AG is embedded with 4Mbit memory to support the programming capacity for most E(E)PROM, MCU/MPU, and PLD. The software automatically uses PC memory as buffer to support high-density memory ICs.

1.1 Programmer and Accessories

Each ALL-100A/AP/AG package contains following standard accessories:

- Base Unit
- single socket Programming Module- M1-UN-DP48.
- An AC power cable, 1.8 M in length.
- A USB cable (Type A to Type B), 1.0 M in length.
- A CD-ROM for Driver Files.
- User's Manual.

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$\stackrel{<}{\curvearrowright}$ Option 99

Price deduction for requesting another Programming Module to substitute M1-UN-DP48 as standard accessary.

5.7	Ontional	Accessories
PN N	optional	ACCC33011C3.

M8-FLASH-TS48	8 sockets Programming Module dedicated for TSOP 48 PINs FLASH.
ADAPTER	Support high pincount devices from 48 to over 300 pins. See ADAPTER LIST on HI-LO Web site.
CONVERTER	Convert signals from DIP to different package types such as PLCC, QFP, SOP, TSOP, BGA, etc. See CONVERTER LIST on HI-LO Web site.

1.2 PC System Requirements

- PC/Pentium above.
- Microsoft compatible mouse.
- A hard disk with at least 200 Mbyte free space.
- A CD-ROM drive with speed x2 or above.
- At least one USB port (Version 1.1/2.0)
- Equip 128MB memory space or above.
- Operating System: Windows 2000/XP/Server 2003/Vista/7.

1.3 ALL-100A/AP/AG Specification

Device Support	Pin Count : from 8 pins up to over 300 pins
	DEVICE Type : EPROM, EEPROM, SERIAT PROM, FLASH,
Device Contact	Default : DIP48.Textool
	Others : SOP, TSOP, PLCC, QFP, MLF, SDIP etc. through
	optional CONVERTERs or ADAPTERs
Max Sockets in parallel	8 sockets on optional GANG Programming Module
Controller	16 bits high-speed controller with big sized FPGA &
	CPLD
Interface Port	1 x USB port
Data Transfer Rate	USB 1.1 : 12 Mb/s
	USB 2.0 : 480 Mb/s
Max Sites in parallel	up to 8 via tiered star USB
Functions	Load file, Read Master, Program, Verify, Auto, ID Check,
	Checksum, Blank Check, Erase, Protect/Unprotect,
	Secure, Edit, Function Configuration, Self Test
Host Computer Requirements	An Intel Pentium or compatible processor with 128MB of RAM
	 At least one USB port available (V 1.1/2.0)
	 200 MB free hard disk space with Windows 2000/XP/Server 2003/Vista/7 operating system
	· CD-ROM Drive
Power	AC voltage : 100-240 VAC
	Frequency : 50-60 Hz
	Power consumption : 50W
Dimension	L x W x H : 260mm x 150mm x 100mm
Weight	4 kg
Operating Temperature	0-40¢J(32-105¢K)
Safety Standards	CE Approved

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2. Single ALL-100A/AP/AG/ Installation

2.1 Hardware Installation

Before installation, make sure your PC has USB 1.1/2.0 port which can be connected to ALL-100A/AP/AG Programmer through USB cable. Suggest to use USB 2.0 for fast data transmission with ALL-100A/AP/ AG Programmer.

USB 1.1 (Full Speed)	: Transmission rate 12 Mb/s
USB 2.0 (High Speed)	: Transmission rate 480 Mb/s (Suggested)

2.1.1 ALL-100A/AP/AG Hardware Installation and Applications Step 1:

Make sure power of Base Unit is in "OFF" state and then positioning and connecting Programming Module onto Base Unit. See figures below:





Step 2:

Connect programmer and PC as figures below.



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



7



Step 3:

Connect power cable to AC power socket of ALL-100A/AP/AG Programmer and plug in the other end to the outlet of power source (100-240VAC / 50-60 Hz).

Power on the ALL-100A/AP/AG from the switch above the AC power socket on the rear panel.

- ☆ Note: Please have PC completely on before turning on ALL-100A/AP/AG for installation and applications.
- After power on, the green LED will lit and the red LED will off; if no, please see **Troubleshooting**.
- ALL-100A programmer is a revised version of ALL-100 programmer. Major enhancements include: The revised core processor ; The regulated device supply voltages further im prove IC programming stability; The new USB processor further speeds up and stabilizes data link / transfer.

ALL-100A programmer operations are same with ALL-100, so user's manual of ALL-100 is applicable to ALL-100A.

The new Pin-card that in ALL-100A is also compatible to ALL-100, but the old Pin-card in ALL-100 is not compatible to ALL-100A.

2.2 USB Driver Installation

Insert the Driver File CD into CD-ROM drive, and then connect USB cable between PC and ALL-100A/AP/AG; power on ALL-100A/AP/AG programmer, the PC will detect the new hardware and a window will open asking "can windows connect to Windows Update to search for software?", please select "No, not this time".



Click "Next" to continue.

 $\stackrel{\wedge}{\rightarrowtail}$ To do installation under Windows 2000/XP/Server 2003/Vista/7, user needs to change Log-in authority to "Administrator" or "Power-User" in order to install new software/hardware driver.

Select "Install the software automatically(Recommended)"



Click "Next" to continue.

Pc will search for driver in the CD automatically (please make sure you have inserted the CD into CD-ROM drive).

Found New H	lardware Wizard
Please wa	it while the wizard searches
Ŷ	Hi-Lo Systems ALL-100 USB Device Driver
	3
	< Back Next > Cancel

PC will allocate files named "ALL100.INF" and "ALL100.SYS" for installation.



Windows has finished the USB driver installation for ALL-100A/AP/AG Programmer.



Click "Finish" to complete USB driver installation.

2.3 Software Installation

Insert Driver Files CD to CD-ROM drive, go to directory of ALL-100 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:



Check of installed software:

(1) Check if software is installed properly with File Manager, see if XACCESS.EXE (for ALL-100A/AP)or GACCESS.EXE(for ALL-100AG), individual IC programming driver, and Utility files exist under C:\Program Files\Hi-Lo\ALL-100(ALL-100G) directory. XACCESS.EXE/GACCESS.EXE is a system file, which provides an easy way to select IC Manufacturer, Product Type, and the corresponding programming driver. All the programming drivers can also be executed without running XACCESS.EXE/GACCESS.EXE/GACCESS.EXE file. Each programming driver usually supports a series of relevant ICs. For instance, driver file XMEM1.EXE is able to program 27C128 ~ 27C512 EPROMs.

(2) When executing programming driver, software will automatically check if ALL-100A/AP/AG Programmer is properly connected. If software cannot recognize the existence of ALL-100A/AP/AG, the connection and/or installation might have problem and ALL-100A/AP/AG Programmer might not be able to be accessed.



(3) Methods to check if ALL-100A/AP/AG Programmer is properly connected/existed:

- 1. Run "USB Info." option under XACCESS/GACCESS menu.
- 2. Run programming driver file under XACCESS/GACCESS menu.

		Son opene : ma	A REAL PROPERTY AND A REAL PROPERTY A REAL PROPERTY AND A REAL PRO
D 1740-18105-10741A-	MPVLD2		2
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PATH: C:			
Input Hes File :	ail -		G Browse
Output Bin File	4		1990 P
HEX Format :	jatel •	Unused Byte	C mu
Start Address :	0100		
			Concernment of the

XACCESS.EXE Utility Dialog Box



XACCESS.EXE Information Box

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3. ALL-100A/AP/AG/ Basic Operation

3.1 Getting Started

We will have a brief description of ALL-100A basic operation, introduce how to access the desired IC programming driver through XACCESS/ GACCESS, the main system program. We will also introduce functions of Device, Load, Blank check, and Program by taking "S29AL004D-TF-01" as **an** example.

 $\stackrel{\wedge}{\succ}$ For best view of ALL-100A information displayed, user screen should have resolution 800x600 pixels or above.

3.1.1 Start with XACCESS/GACCESS.EXE

Click the icon of XACCESS/GACCESS to activate XACCESS.EXE/GACCESS .EXE and get following display on the window.

3.1.2 Entries to Programming Driver

Click "Device" and "Select Device" to display two entries to programming driver, "select manufacturer/type" and "search for type" (as the figure below).



(1) Select manufacturer/type

Click "Select manufacturer/type" in "Manufacturer List" to display IC Manufacturer options. Select "SPANSION" and click "OK" to display Type List.

	• 0	1 0	SWUpdate: http://w	address and the second second second	
art Open KDP	STRUFFURST	LOPPHRI GASTIKIZ DA	E-MI-STM32FIG/C-GF48	2	
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X Earcel	529AL0 529AL0 529AL0 529AL0 529AL0 529AL0 529AL0 529AL0 529AL0	5450 17 401 D4D 17 402 000 48 401 000 48 401 000 48 401 000 48 401 000 48 402 000 48 402 000 48 402 000 48 402 000 48 402 000 48 402 000 48 402	NT UNIT STANATSS NT UNIT STANATSS NT UNIT STANATSS NT UNIT GEOLA NT UNIT GEOLA NT UNIT GEOLA NT UNIT STANATSS NT UNIT STANATSS NT UNIT STANATSS	TOP 5291064/464 TOP 529164/464 TOP 529164/464 TOP 529164/464	

Select EPROM/FLASH in product groups, and select "S29AL004D-TF-01" in product type at right side of Type List and then click "Run". (2) Search for type

Click "Search for type" in "Manufacturer List", select "S29AL004D-TF-01" and the required HEAD P/N is displayed under the block of Search. Then click "OK" to enter the main menu of driver.

🖳 Manufacture List		
Select manufacturer/type Search for type		
SPANSION S29AL004D-8A-01 SPANSION S29AL004D-8F-01 SPANSION S29AL004D-8F-02 SPANSION S29AL004D-MF-02 SPANSION S29AL004D-MF-01 SPANSION S29AL004D-MF-01 SPANSION S29AL004D-MF-01 SPANSION S29AL004D-TA-01 SPANSION S29AL004D-TA-02 SPANSION S29AL004D-TF-01 SPANSION S29AL004D-TF-02		
Search : S29AL004D ==> M1-UN-TS48A/TS56	•	Found : 9 devices
🗸 ОК	Cancel	SPANSION
Required moduke/ada	apter) IC type	to be programmed

Click the part number you would like to program and then you will see name of the required module/ adapter under "Search", and then press "OK" to continue.

3.1.3 Enter Main Menu of the Driver

Main Menu of the Driver File contains three major parts, the first row for menu of main functions, the second row for quick function keys, and the rest provides space for dialogue boxes of IC information like IC Manufacturer, Product Type, Adapter, Module needed... etc.

MIX: SPANSION Type: S2NALBOHD-TF-01 Module: M1-UN-TS4BAY1356	
Type: S29AL884D-TF-81 Module: M1-UN-T548A/T556	
Module : M1-UN-TS48A/T556	
AdaptorTop: NONE	
Target Zone (Dyte Wide) Device Start: 60000000 Device Start: 600000000 Buffer Start: 600000000	
Buffer Checksum: 07F80000 CRC Checksum: 0041	
Butter Status : PC Memory Butter Size(Bytes) : 1824K	

Main Menu of the Driver

Remark:

When reselecting IC manufacturer and Product Type, information in dialog box will be updated accordingly and the driver file will be down-loaded to ALL-100A Programmer. If message "File not found" appears, it means the driver file is not available in PC, check the attached Driver File CD or visit HI-LO web site at http://www.hilosystems.com.tw for S/W download. If a specific ADAPTER or Module is needed, "File not found" might be due to the absence of the required ADAPTER S/W. Try to install the S/W again.

3.2 Load file to Programmer buffer

It is ready for IC programming after selecting IC Manufacturer and Product Type. In general, programming code is saved in a file in Bin/Hex format. This code needs to be loaded to programmer buffer and then programmed into Blank IC devices. To load file to programmer buffer, click "File" menu, select "Load file to Programmer buffer" option, following dialogue box will appear:

oad File					2
Look in	test 😂			+ 🗈 🗗 🖽 -	
EX	Nane -	Sce	Type	Date Modified	1
0	Chi_090328	1 18	Fie	10/17/2007 9:03 AM	
My Fiecent	Chi_090720.st	9 50 KB	S19 File	8/26/2004 9:07 AM	
DOCOMBUST.	CN_090906	64 100	60V File	6/18/2008 9:09 AM	
	Chi_091220	64.82	00N File	10/17/2007 9:12 AM	
-	CN_091244	64 83	SON File	10/17/2007 9:12 AM	
Deptop	20 CN_091302	32 KB	804 File	10/17/2007 9:13 AM	
1000	Chi_091414	518	EDV File	4/23/2007 9:14 AM	
22	Chi_091436	64 KB	SDV File	10/17/2007 9:14 AM	
te Documents	CN_091456	32 KB	SON File	10/17/2007 9:14 AM	
A COLORED	Ch_093714.H	EX 418	HEX File	7/15/2008 9:37 AM	
100	Chi_094742	512 KB	201 File	9/17/2007 9:47 AM	
1.1	Ch_094940.ht	23 18	HEX File	10/18/2007 9:49 AM	
My Computer	Ch_100834.he	rx. 5108	HEX File	11/24/2004 10:08 AM	
	Pres second	7118	area ale	4.01812008.10.10.448	-
	Fienane	05,155142		-	Open
My Network	Film of type.	All Files(".")			Cancel
Places		Binary Files(".bir	a		

Function of file loading is similar to that under Windows environment. Enter the file name to be downloaded and click "Open", the named file will be loaded to programmer buffer. **Note: Disk drive and file path must be correct.** Select and click the correct drive and folder that the file located to. If it cannot be operated by mouse, apply <TAB>, <UP>, <DOWN>, and <ENTER> keys for selecting and confirming.

3.3 Read contents from Master IC to buffer

When programming code is stored in a Master IC, insert the Master IC onto socket, click "Read" button on screen or press "R" key on keyboard to read programming code from Master IC to programmer buffer.

	Read Device	
Mir. : Type :	Counter: Message: SF * Normal © Even © Odd S7	Messages
Madule : Adaptor(Top : Device Start :	VE ID Check Protect(Lack Sta VC Run Close	149 17 -
Butter Start : Juffer Checksu	00 m : 07F80000 CRC Checksum : 0041	

When insert Master IC onto socket, make sure Pin 1 orientation and Pin count positioning is correct as diagram indicated.



- $\stackrel{\wedge}{\rightarrowtail}$ Caution! Incorrect IC positioning might cause IC damage or be programmed to an unknown state.
- $\stackrel{\Lambda}{\searrow}$ Do not take the IC away from socket during programming, or the IC and programmer might be damaged.

3.4 Program buffer contents to IC

Insert IC to be programmed onto socket, click "Auto" button on screen or press "A" key on keyboard, following dialogue box will appear.

MR SPANSION Type: S25AL004D-TF-81	Serial No. OFF	Check BIFE	Sum :
Program Setting	Procedure status: UNLOCK Stirl # Status: 1 Programming	Om OK 3	eter NG
 ⊂ trace ⇒ Brank Oberth ⇒ Program ⇒ Verify ⊂ Serifid Manuface ⊂ Product ⊂ 			
P		1 Head	There is a second se
	han Dires	Reset	Covert

Click "Run" button on screen or "Y" key on keyboard or "YES" on programmer to start programming buffer contents to blank IC. After programming, system will automatically verify data read from programmed IC with data in programmer buffer. If both data match

then the "GOOD" LED will be lit to show a successful programming. For next IC programming, the "BUSY" LED needs to be off and then insert blank IC onto socket, click "Run" button on screen or "Y" on keyboard or "YES" on programmer to continue programming.

Click "Close" button on screen or <ESC> key on keyboard to go back to main menu.

3.5 MODULEs, TOPs

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

■ MODULE:

M1-UN-DP48 has DIP48 socket, and adapters and converters that are described below can be inserted on the module. And there are modules designed for special IC package and series (including gang module); please use the recommended one that is displayed on XACCESS/ GACCESS. Each module has a (or more) program ming file(s) that needs to be copied to the same directory as XACCESS/ GACCESS.

TOP:

A TOP is used with Module for special IC packages(like BGA).

ADAPTER:

Each ADAPTER has 40/48 gold plated pins in DIP layout which can be inserted onto 48 pins ZIF socket on the Programming Module.Each ADAPTER has one (or more) programming file(s) that needs to be loaded to the same directory as XACCESS.

■ CONVERTER:

CONVERTER is used to convert signals from DIP package to others like PLCC, SOP, TSOP, ...etc. No extra programming file is needed to work with CONVERTER.

3.5.1 ADAPTER and CONVERTER installation

■ S/W Installation:

Copy the ADAPTER file(s) attached to the same directory as that for XACCESS file(s).

■ H/W Installation:

Insert the DIP-layout 40/48 pins of ADAPTER or CONVERTER onto the 48 PIN DIP ZIF socket on the Programming Module and lock it. See diagram below:



Note: While inserting ADAPTER or CONVERTER onto DIP ZIF socket, please have it close to bottom of the socket (toward the YES key), and you should insert ADAPTER/CONVERTER by following direction as the picture shows.

4. Multiple ALL-100A/AP/AG Installation

USB interface provides functions like "Plug-and-Play", auto detection, high expansibility, and high transmission rate (480 Mb/s for 2.0 version). By using these functions, ALL-100A/AP/AG can be installed up to 8 sets and running simultaneously.

After single ALL-100A/AP/AG installation, more ALL-100A/AP/AG Programmers can be installed through either extra USB ports of your PC or USB 2.0 Hub like following diagram.



Multiple ALL-100A installation through USB 2.0 Hub

4.1 Multiple ALL-100A/AP/AG Operation

Multiple ALL-100A/AP/AG operations can increase programming throughput. With Multi-Thread methodology, each programmer can operate independently. The diagram below shows there are two ALL-100A/ AP Programmers (Site #0 and Site #1) are running programming.



Site # setting switch is located on the rear panel of ALL-100A/AP/AG Programmer. Valid Site # for Multiple ALL-100A/AP/AG setup is 0~7 and can not have the same Site # in whole system.



When running ALL-100A/AP/AG programming software, system will automatically detect and load necessary driver S/W and also download programming code to ALL-100A/AP/AG through USB port. Operation of multiple ALL-100A/AP/AG is basically the same as that of single ALL-100A/AP/AG. There are two operation modes for multiple ALL-100A/AP/AG programming, synchronous operation and asynchronous operation.

After entering programming mode on screen, user can choose either of following two operation modes depending on production needs:

Synchronous operation:

Run programming on all the ALL-100A/AP/AG at the same time. Put ICs onto socket of each ALL-100A/AP/AG, press "Y" key on PC keyboard. All ALL-100A/AP/AG will start programming simultaneously.

■ Asynchronous operation:

Run programming on each ALL-100A/AP/AG one after another. Put IC on the 1st ALL-100A/AP/AG, press <YES> on that programmer to start programming, then put another IC on the 2nd ALL-100A/AP/AG, press <YES> on that programmer to start programming, then the 3rd one ... and so on.



4.2 Read/Compare on Multiple ALL-100A/AP/AG

To perform Read/Compare function under Multiple ALL-100A/AP/AG setup, only the minimum site# is valid. This means that only IC on **minimum site#** can be read/Compared under Multiple ALL-100A/AP/AG setup.



Read Dialogue Box



Compare Dialogue Box

Note:

While using ALL-100AG, only socket#1 that on the minimum site# ALL-100AG can perform Read/Compare; and there is no such restriction if you just install one ALL-100AG on your PC.

5. ALL-100AG Gang Option Installation

For further speed up programming for volumes of ICs, 8 sockets Programming Module option is available. Contact your local HI-LO agent for ordering information.

ALL-100AG Gang Programmer is an ALL-100AG Base Unit with 8 sockets Programming Module put on the top. User can choose either Single ALL-100AG Gang operation or Multiple ALL-100AG Gang operation for mass programming. The S/W attached with 8 sockets Programming Module is used for ALL-100AG Gang as well as Multiple ALL-100AG Gang operation. The installation /operation is similar as what is stated above.

 $\stackrel{\scriptstyle <}{\sim}$ Due to more information to be displayed on screen for Gang operation, user's screen resolution needs to be 1024x768 pixels (SVGA mode) or above.



5.1 ALL-100AG Gang Operation

ALL-100AG Gang Programmer ties IC pin count in parallel, drive programming and control signals through FPGA to program ICs on all sockets simultaneously. The diagram below shows there is one ALL-100AG Gang Programmer (Site #0) is running programming.



Up to 8 sets of ALL-100AG Gang Programmer can be connected to PC through USB interface, this is so call "Multiple ALL-100AG Gang Setup". Each ALL-100AG Gang can program 8 ICs. One PC with 8 sites of ALL-100AG Gang setup can program 8x8= 64 ICs.

For Gang module, we provide module that can support 4 pcs IC (M4-XXX), 6 pcs IC (M6-XXX) and 8 pcs IC (M8-XXX) depending on IC_i |s package or type, and you can find detailed module list from Hilo_i |s website and GACCESS.

5.2 Read/Compare on Multiple ALL-100AG Gangs

To perform Read/Compare function under Multiple ALL-100AG Gang operation, only IC on **MASTER** (Socket #1) of **the minimum Site** # Gang programmer is valid. This means that only the 1st IC on **MASTER** (Socket #1) of **the 1st site (the minimum Site #)** Gang Programmer can be read/compared under Multiple ALL-100AG Gang setup.

Put IC to be read/compared onto **MASTER** (Socket #1) of **the minimum Site** # Gang Programmer and click Read/Compare keys on screen.

Type: S25AL804D-TF-01 Module: ME-FLASH-TS48D Counter: Adaptor/Top: HOHE Target Zone (Dyte V Device Start: 00000000 Devi			SPANSION		MIC: 3	
Moduli : M5-FLA3H-FS480 Counter : Adaptor/Top : NOHE Message : Target Zone (Dyte V Device Start : 0000000 Dev			tr-at Engl Denne	529AL004D-TF	Type:	
Adapter/Top: NOHE Message: Target Zone (Dyte V Device Start: 00000000 Dev			S488 Counter:	METLASHTS	Module :	
Target Zone (0)/fs * * Normal / Even / Odd			Message:	NONE	Adapter/Top :	
		Even Codd	Dev Normal	Target Zone (Device Start :	
Buffer Otecksam: Biff88800 Child Buf > Di Chick > ProtectLock states Buffer Otecksam: Biff88800 Child Buf		Oese Oese	CRC C	817 80800	Buffer Olecksu	
Butter Status: PC Memory Butter Byte use even or odd mode the butter will automatically expand to 2 times the device size.	_	or odd mode, the buffer y expand to 2 times the	Buffer If you use even will automatical device size .	PC Memory	Butter Status :	

 $\stackrel{\wedge}{\sim}$ Refer paragraph 4.1 for setting of Site # for Gang Programmer.
6. ALL-100A/AP/AG Software Description

6.1 XACCESS/ GACCESS User Interface

System Software "XACCESS" or "GACCESS" is an interface guiding user to locate the driver software for product type to be programmed. XACCESS/GACCESS also provides File Management Utilities as well as Data Base of programmable IC products.



6.2 Enable/ Read Job Function

With enabling Job function, it will enter Job File Mode automatically when you execute the software next time, and it will enter "Auto" programming mode after loading in the Job File you need.

6.2.1 Save your Job File

Please refer to 6.6.1.(3).

6.2.2 Read your Job File

When you are going to program a device with the same settings, you can load in your Job File and then program the device directly without making any settings again.



Load Progra	mmer Configuration		? 🛛
Look in: 🔀	JobFile	- 🗢 🔁	💣 🎟 •
Test.e00			
File name:	Test.e00		Open
Files of type:	Jog Files(*.e00)	•	Cancel

Job File Information	
Job is Created on : 2011-1-17-14:41:53 Note :	
Test Information.	
<u> </u>	
ОК	

6.2.3 Enable Log Function

If this options is ticked, that means this function is already enabled, and it will record all of your programming procedures and results in the Log folder. You can disable this function by double clicking this option; this function is enabled under default settings.

6.3 Diagnostic Tester

Diagnosis for ALL-10	0 (v2.01)		Test optio	ons
ALL test	ITL test	VQPtest	V <u>H</u> H test	V <u>Q</u> P test
Meaasge :	Please	e don't insert a	any module in p	programmer
TTL driver test ok I				
VCP driver test ok I				
VHH driver test ok !				
VOP driver test ok I				
Select a progr	ammer			

You can run "Diagnostic Tester" to check ALL-100A.

The diagnostic includes ALL Test, TTL Test, VCP Test, VHH Test, VOP Test; if it passes ALL-test, you will see result like the picture.

☆ Be sure to remove any Module from programmer before running Diagnostic Test; otherwise Module or IC on Module might be damaged.

6.4 Utilities:

File Management Utilities includes Hex to Bin Converter, Bin to Hex Converter, 2-way splitter, 4-way splitter, 2-way shuffler, and 4-way shuffler, ...etc.

6.4.1 Hex to Bin Converter

Convert data from Hex format to Binary format for programmer Read/ Write.



6.4.2 Bin to Hex Converter

Convert data from Binary format to Hex format.



6.4.3 2-way splitter

Split one file into two output files. One file contains odd-byte data of the original file and the other file contains even-byte data of the original file.

Filename	s after split		Filename	to be spl	lit
Constant Descent	ST 19. 249		V		
*		9	SAW Update : http://www	hilosystems.	am.tw
That Count Dy	The control of the co		in the second se		
Spin T	I Data Formet pist in Dyte Wide ⊂ Sp <u>∑ Start</u>	olit in Word Wide	← Spit is Dword Wide <u>∧ Close</u>		
Split form	at options	2-way si	olitter		

Split Data Format:

Normally the split data is in Byte Wide, however, user can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data split.

6.4.4 4-way splitter

Split one file into four output files. The 1st file contains the 1st byte of every 4-byte data segment of the original file. The 2nd, 3rd, and 4th file contains the 2nd, 3rd, and 4th byte of every 4-byte data segment of the original file.



Split Data Format:

Normally the split data is in Byte Wide, however, user can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data split.

6.4.5 2-way shuffler

Combine two files into one. Insert data of Even file into even byte position of the combined file and insert data of Odd file into odd byte position of the combined file.

Filena	mes to be shuf	fled	Filename a	after shuffle
AL HINKS	d Freynan er			
Same Inter De	ALCORE - DAMA			
	e o %	0	S/W Update : http://www.h	losystems.com.tw
Fast Open D 8746-1	eter#1741A#WMPU2E/E			
	tay		20	×
2.	ny shalller		12.00	Correct Correct
Out	put File :			
12		O	C: firmene	1
Inpu	tFile:			
E.		-		
0	dat	-0		
	effe Dola Formet Stuffie in Byte Wide 个 S	huffle in Word Wi	de: C. Shuffle in Dword Wide	
	I Start	1	f. Quee	
		15		
		2-way sh	uffler	
Shuffle form	nat options			

Shuffle Data Format:

Normally the shuffled data is in Byte Wide, however, user can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data shuffle.

6.4.6 4-way shuffler

Combine four files into one. Insert data of 1st file into the 1st byte of every 4-byte data segment of the combined file, insert data of 2nd, 3rd, and 4th file into the 2nd, 3rd, and 4th byte of every 4-byte data segment of the combined file.



Shuffle Data Format:

Normally the shuffled data is in Byte Wide, however, user can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data shuffle.

6.4.7 Version List

List version number of current programming software.

ALL-100 Dor soc	al Programma			- 1
dia Davica Detar	Helay USB h	fo. <u>H</u> elp		
	🔹 🗿	* 0	S/W Update	: http://www.hilosystems.com.t
sol Coon tor ACE	ACE24012**XSP	ROM.EXE**M1+UNHOP	18	
				1
		😃 Version List	- 🗆 🛛	4
		Close	1	
		Name	Version	-
		XNEEX	3.02	
		XA1500	3.03	
		XA1810	3.05	
		XA28F1	3.51	
		XA28F2	3.57	
		XA56FXX	3.06	
		XA7C37X	3.84	
		XASUB	3.03	
		VAREND	3.84	
		XACC2430	3.20	
		A LOOK THE	0.2.0	
		1 × .	· · · · · · · · · · · · · · · · · · ·	

6.4.8 Cross Reference

List the Cross Reference of IC Mfr., Product Type, and the corresponding programming software.



Cross Reference

6.4.9 Device List

List all device types that are programmable at current version.



= 49 =

6.5 Protect Mode

XACCESS/GACCESS provides Protect Mode to limit user's operation authorities after entering programming software. The user will need to key in password in order to enable or disable this function.



6.5.1 Protect Mode Password

For the first time to run Protect Mode, you need to key in new password and confirm again; then click "OK" to enter Protect Mode Option.

To change the password or re-starting Protect Mode, you need to key in the original password, and then new password and confirm again.

Protected Mode Password	
* Maximun Password I	ength is 15 characters *
Old Password :	
New Password :	XAAAA
Confirm New Password :	****
ОК	Close

To disable Protect Mode, the password is also essential.



6.5.2 Protect Mode Option

After s/w enters Protected Mode, a functional menu is available to select functions on the left and make them executable in s/w. Then select functions on the right to make them optional in Auto function and click <OK> to finish.



6.5.3 Reset Protect Mode Option

When Protect Mode Option is reset, the following message will pop up. If you click <Yes>, all the settings will be changed back to the original default settings.



6.6 Programming Data/ Function Description

Programming software includes loading of programming driver, utilities of data management, and control of programming function/ operation. Each programmable IC needs correct functional setup before programming. User needs to refer IC data sheet and/or application software for proper setup of programming function. See description below by taking SPANSION S29AL004D-TF-01 as an example.



= 53 =

Buffer Checksum :

A value that is got by plus each bytes in code in buffer

CRC Checksum :

Just like Buffer Checksum, but it is calculated by using CRC algo-rithm (EX: CRC-D8, CRC-D16). Users can find out problems by analyzing CRC Checksum when offset of the file to be loaded is wrong.

Buffer Size :

Size of programmer buffer that it generated by software.

6.6.1 File

Load/Save of data file and configuration file. See dialogue boxes below.



(1) Click "Load File to Programmer Buffer" in File to load data file:

	Pitt	-		and the second s	
2	None -	504	Type	Date Modified	
130	Ch_090328	1 100	File	10/17/2007 9:03 AM	
My Recent	CN_090720.419	50 KB	519 File	8/26/2004 9:07 AM	
Cocumeres	CN_090906	64 KB	BDV File	6/18/2008 9:09 AM	
	CN_091220	64 KB	BDV File	10/17/2007 9:12 AM	
Destant	CN_091244	64 KB	ONIFRE	10/17/2007 9:12 AM	
Percop	CN_091302	32 KB	BDN Pile	10/17/2007 9:13 AM	
	CN_091414	8 103	DD1 File	4/23/2007 9:14 AM	
122	Chi_091436	64 KB	BDV File	10/17/2007 9:14 AM	
lu Documenta	Chi_091456	32.68	BDV File	10/17/2007 9:14 AM	
	CH_093714.HEX	4 833	HEXPle	7/15/2008 9:37 AM	
100	CN_094742	\$12 KB	B3N Film	9/17/2007 9:47 AM	
100	Chi_094940.hex	23 KB	HEXPle	10/18/2007 9:49 AM	
My Computer	CN_100834.hex	5.48	HEXFile	11/24/2004 10:08 AM	
	Rest Antenan	33.68		4710 Choose 10-10.044	
	File name: Ch	155142			Open
Mu Network	Files of type: AS	Filed 7.71			Cancel
Places		Care of the			
	0.0	wy Films(" bir	NI -	Y	
	LHE .	K Féles			



Automatic File Format:

Enable this option if you are not sure the format of your data file, and a proper file format will be selected automatically.

Automatic File Offset:

Enable this option if you are not sure the offset of your data file, and the File Start will be automatically adjusted.

Unused Bytes:

[Don't Care]: Keep the data as it was in unused bytes of buffer memory.

[FF]: Write "FF" to unused bytes of buffer memory.

[00]: Write "00" to unused bytes of buffer memory.

Swap:

Please refer to explanation in 6.6.2(5) and (6); if you select **None**, it will not swapped. The programming software provides user with Little-Endian originally, and you can use Swap function to swap the format if you are using Big-Endian or others. (2) Click "Save File from Programmer Buffer" in File menu to save a data file from programmer buffer as a Binary file; then the following dialogue box will show up.

But to save data files as other formats, please run "Utility" in main menu of XACCESS/GACCESS <see details in **6.4**>.



(3) Save Programmer Configuration

After all programming options are set, select "Save Programmer Con-figuration" to save all the info as a Job File (the subname in ALL- 100A is *.e00 and is *.g00 in ALL-100AG) including programming driver, contents, program settings and so on, thus users can load in it directly next time.

Save Programm	er Configuratio	n				? 🛛
Save in:	C JobFile		٠	÷ 🗈	ci 💷•	
My Recent Documents Desittop My Documents	Test.e00					
My Computer					_	
My Network Places	File name:	Test.e00			-	Save
	Save as type:	[Job File (*.e00)			-	Cancel
Act File 2003/ Note Text	: Jalamation (5,18-10:08:31 (Maximun 255 Information	sherosters)			~	

OK

(4) Dialogue box of enable Job Function:

Once user enables Job Function and followed by loading Programming Configuration file, system will enter <AUTO> programming mode and is ready for programming. User needs not re-do the programming functional setting and serial number setting.

See File from Proprietation Buffier	pin Varir Cours hive	Frater Suprest
Livel Straponnes Configuration Dave Pergennes Configuration	Mile .	Messages
Bada Mi Parka		
ada ba fa lina a const		
Eadia Bepfinal	9-61	
India functed puls	VT356	
Sada Join Fragman -		
Lat		
Target Zo	in (Dyle Wide)	
Device Start: 00000000	Device End: 0003FFFF	
Buffer 35ar1 00000000	Buffer End : 00071777	
Buffer Checksum : 6790000	GRC Obecksom: 0041	
Butter Status : PC Memory	Butter Streitbytesy: 38246	
(Enable Jo	b Function)	

(5) Beep/ Sound setting

After enabling Beep/ Sound, this option will be ticked, that means it is activated already; when the programming is finished, it will output a "finish" sound through Beep of PC (if Sound Card is not installed) or speaker; click this option again and you can disable this function, and it is disabled in default setting.

6.6.2 Edit

Includes programming data editing and addressing. See dialogue box below.

	<u>†</u>			data option
			Address programming	data option
😹 XA28FLEXE(V3.52)			
Elle Entre Device Edit Program Re Modify Prog	Chensten (1) B lafe, Abent mei Buffer meinen Boffer Mapping (1)	impore Irase	Tranet Ungratet	
Programmer Ability	Device		Messages	
Mfr. :	SPANSION			
Type :	\$29AL004D-TF-01			
Module :	M1-UN-TS48A/TS56			
Adaptor/Top :	NONE			
Device Start :	Target Zone (Byte Wide) 00000000 Device End	: 0003FFFF		
Duffer Start :	00000000 Buffer End:	0007		
Buffer Checks	im : 07F80000 CRC Checksu	m : 0041		
Buffer Status :	PC Memory Buffer Size(By	/tes): 1024K		

(1) Edit data:

Provide functions such as Fill, Jump, Swap, Calc, SUM, Search,... etc for user to edit programming data in Hex and ASC II expressions.



(2) Fill:

Specify start and end addresses and data to be filled in, then click "OK", data will be filled into the specified area.



(3) Jump:

Specify the start address to jump to, then click "OK", system will jump to the specified address with data displayed.



(4) Move:

Specify start and end addresses in which data to be moved, also specify the destination address to move to, then click "OK", system will move data between specified addresses to the destination area.



(5) Swap - Byte and 4 Bytes:

Specify start and end addresses in which data to be byte-swapped or 4-byte-swapped; then click "OK" to start swapping.



Address	Original Data	Byte-swapped	4 bytes-swapped
00000h	01h	02h	04h
00001h	02h	01h	03h
00002h	03h	04h	02h
00003h	04h	03h	01h
00004h	05h	06h	08h
00005h	06h	05h	07h
00006h	07h	08h	06h
00007h	08h	07h	05h

_____ 66 _____

(6) Swap - Nibble:

Specify start and end addresses in which data to be nibbleswapped, then click "OK", system wil swap Nibble for data between specified addresses.



Bit that in original byte	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Bit after Nibble Swapped	bit3	bit2	bit1	bit0	bit7	bit6	bit5	bit4

(7) CalcSum:

Specify start and end addresses in which data to be calculated for checksum and then click "OK", system will calculate and display result (checksum) on screen.



(8) Search:

Two options available, search ASC II data or search Binary data.



69 =

(9) Print:

Two options available, print to printer or output to file.



70 =

(10) Modify Programmer Buffer Mapping:

dit Programmer Buff	er Mapping Mapping
Start Device: 00000000 Buffer: 00000000	0003FFFF
ОК	Cancel

Example:

Program data from Buffer address \$00000 - \$0FFFF to Device address \$10000 - \$1FFFF.


6.6.3 Operation

Different IC product type might have different options of programming functions. Basically, programming functions include options of Erase, Blank, Program, Verify, Lock, Auto, ...etc.

Adaptorfiop: Ad	CO Mr. Aver per Serb Craper vice	Messages	 _
C Z Z Ded Bed Arts Composition December 2010 December 2010	101 17556	Messages	
Manager State Mr.: Book Type: Food Madule: Food Lot Adaptor/Top: Ano	vice r o1 vT5%	Messages	
Mir.; Mir.; Type: Module: Adaptor/Top: Adaptor/Top:	vice F 01 vT5%6	Messages	
Mir.: Boni Endi Type: Proper Module: Prove Link AdaptorTop: Arto	F 01		
Mir.: Even Even Type:: Proprie Wodule:: Provid Look Adaptor/Top:: Arro	• (T-01 (T-256		
Type: Propie Solly Module: Provi Lock	r 01 4T556		
Module : 2wily Module : Tester Los	v15%		
Module : Teres 	VT 556		
Adaptor/Top : Arto			
Teo .			
280.34	T manual		
Parallel Start : Bellen	the first ford: 0001	erer .	
Duffer Start: 000000	0 DumerEnd: 0007	1111	
Duffer Status : (PC Mem	ory Duffer See(Dyles):	1824K	

User can also click <Fast Key> to excute program functions. See <Fast Key> indicated below:

Eile	<u>E</u> dit	<u>D</u> evice	Operation <u>U</u>	SB Info. 🛛 🗛	bout				
<				20	20	20	<u>_</u>	•	
Re	ead	<u>A</u> uto	<u>B</u> lank	Program	<u>V</u> erıfy	<u>C</u> ompare	<u>E</u> rase	Pr <u>o</u> tect	Unprotect
		(Fast ke	ey for Devi	ce S29ALC	004D-TF-0)])			

= 73 =

(1) Read:

Read contents in IC memory. Read function is only valid for IC on following position.

- Single ALL-100A/AP setup: The IC on the socket.
- Multiple ALL-100A/AP setups: The IC on the minimum Site # programmer.
- Single ALL-100AG Gang setup: The IC on Socket #1 of Gang programmer.
- Multiple ALL-100AG Gang setup: The IC on the 1st Socket

(Socket #1) of the 1st Site (the minimum Site #) Gang programmers.

	Pard Danian	1
	Counter :	
	Message :	
Г	● © Normal ⊂ Even ⊂ Odd	
	ID Check □ Protect/Lock Status	
	Run Close	
	If you use even or odd mode,the buffer will automatic illy expand to 2 times the device size .	
Read opt	tions (IC ID check) Process sta	atus and Message

 $\stackrel{\scriptstyle <}{\rightarrowtail}$ After Read operation, suggest user to double-check to confirm checksum and the data read are all correct.

(2) Auto:

Protect Mode inactivated

Enter programming mode with all programming functions activated.

	Parameter setting (IC Mfr./Protect type)	G
	↑ ↑	
Arto Sectors/Blocks	Lucks	A
Mfr.: SPANSION	Serial No.: OFF CheckSum:	
Type: S29AL004D-TF-	01 01FE0000	
P ID Check Unprotect P Erase P Bank Check P Program B V Verity Serial Number Bu Protect Bu	Procedure status: UNLOCK Counter: Site # Status: OK NG 0 Programing 39% 3 1 2	
	Reset Count •	

 ☆ Different IC product type might have different programming functional setting and parameter setting. User needs to refer IC data sheet for proper settings of programming functions and programming parameters. ■ Protect Mode activated:

After Protect Mode is activated in XACCESS/GACCESS, all programming settings of Auto function will run basing on the setting of Protect Mode Option.

Besides, at the lower right corner of Auto dialog apprears an additional button of "Lock Proc.", which locks the thorough programming dialog except the <RUN> button.

CheckSum :		Serial No. : OF	ANSION
07F00000			SALOHD TF-01
Counter:		edure status : UNLOCK	prant Setting Proc
* #		status :	0
			unf. al
			0.viii 2
		1	
11			(III)
12			
	Total:	H.	1.22
Burnet Churnet	1.110		

Lock Process:

After Protect Mode is activated, click <Lock Proc.> to lock the programming dialog of Auto function but <RUN> button is excepted. The procedure status will show "LOCK" and <Lock Proc.> will change into <Unlock Proc.>.

You can either click <RUN> to start programming or click <Unlock Proc.> to unlock the dialog.

 $\stackrel{\wedge}{\leadsto}$ Entering password is essential for Lock and Unlock process.

Sector/Block: Specify Sector/Block to be protected if needed.
 When a sector is ticked, that means protect function of that sector will be activated.

Type	525AL0040-TF-01		Serial No. : OFF	CheckSum:
1	Sector Setting Set Protect		10-0	
1	2 D00000-B07TTT	1	1	
	B00000-00FTTT	F.	F	
1	E 010000-017878	F	- F	P
-1	2 010000-01FFFF	P	100	P
1	S 620000-627FFF	P	- F	
1	S 820000-82177FF	F	- F -	r
1	B 830000-43777F	17	F.	F
2	9 030000-030FFF	n .		
1	9 63C000 63CFFF	n		
-1	F. 630899-630FFF	T	10	
1	CHE000-03FFFF	E1	(C)	
	C	F	E	
	12	(T)		100
	(f)	17	- F	1
	11	E.	1	
	(f).	1.0	10	
		Set / Over) all blo Flan	a.] [0K Cancel

Parameter: Special setting for programming if needed. If an option is displayed in gray, that means that function is not available.



= 78 =

Serial Number:

Select "Serial Number" option of the programming setting to enable "Serial No." of Auto function; then click "Serial No." to set the length, start address and format, etc...; Serial NO. will increases 1 automatically after a device is successfully programmed.

 $\stackrel{\wedge}{\sim}$ This feature is provided basing on algorithm/application of IC product so it is not available for all ICs.

Serkil No.: 00000000000000	CheckSum:
SIN Start Address : 0000000	07F80000
Procedure status: UNLOCK. Ste # Status: 0 7 3 4 5 6 7	Counter: OK NG 8 0
Total:	
	Reset Count
	Serial No.: 890000099000000 SN Start Address : 890000 Procedure status : UNLOCK Stef Status : 0 0 1 2 2 3 4 4 5 5 7 7 7 Total

= 79 =

Serial Number	
Serial Number:	
Length:	4 (1-4 Words)
S/N Start Address:	0000000
Display Format:	HEX C BCD
Start Serial No.:	00000000000000000000000000000000000000
Direction (MSB in):	Else Else Contraction High Byte
ОК	Cancel

Length:

You can set the length of Serial number(the maximum is 8 bytes; 4 words, 16 characters).

- Display Format You can select HEX or BCD as the format.
- S/N Start Address You can set the start address for writting ROM.
- Start Serial No You can set the start address for writting Serial number.
- Direction You can select the displaying order (from High to Low or Low to High).

Result button: Button to display programming result and elapsed time.

MP. : SPANSION Type : SPAL004D TF 81	Serial N	N.: OFF	Deck State	
Program Setting	Procedure status : UK Sile # Status :	elock	Oounter: OK NG	
Elippolect Ense Ersee Ense Ense Vergram Vergram Vergram Vergram Vergram Vergram Fredect Fredct Fredct Fredect Fredect	Test for			
6	utt Button)	Total :	1 1 Reset Count	

- (3) Erase : Enter programming mode with Erase function activated.
 - Blank : Enter programming mode with Blank check activated.
 - Program : Enter programming mode with Program function activated.
 - Verify : Enter programming mode with Verify function activated.
 - Protect : Enter programming mode with Protect function activated.

States	Root - Monte Much Charl Davise Second Science State Mir.: SPANSION	Serial No.: OFF	CheckSum:
Adaş Devle Dulle Buller Buller	Type : 323AL004D-TF-41	Procedure status: UNLOCK Site J Status:	OTF88000 Counter: OK NG 0
		Run Gose	1
	Blank Check optio	n) (ID Check	option

MIY.: SPANSION	Serial No.: OFF	Check.Sum:	
Type: \$29AL004D-TF-01		07F80000	
Program Setting	Procedure status : UNLOCK Sile # Status :	Counter: OK NG	1
P ID Check	0	0 0	
5			
- -	2		
Program Verity	2		
Ę	1		
Ē	5		
	6		
	Totai:	0 0	
		neser count	<u> </u>
	Run Close		

=

_

6.6.4 USB Info.

Display current ALL-100A/AP/AG connection status through USB interface.



6.6.5 About

Display list of required Module/TOP/Adapter/Converter and version of programming driver, as below:



(1) Module , CNV/TOP or CNV/ADP List: display list of required module, TOP converter or adapter.



(2) Programmer Info.: display current programmer type and programming driver version.

About ALL 100	ALL-100 Programmer Version 🔀
Universal Programmer	#0 v2.00
MODEL : ALL-100 (C) HI-LO O	· · · · · · · · · · · · · · · · · · ·
BIOS Version	
XA28F1.EXE V3.52	
Driver Version	ALL-100 Driver Version 🔀
	#3 - MFL400T.100 V1.01

7. ALL-100A/AP/AG Troubleshooting

After power on, ALL-100A/AP/AG will run self-diagnostics and USB connection check. Green/Red LED will display test result. Table listed below summarize test result with possible causes/dispositions for troubleshooting.

Condition	Possible cause/Dispositions
After power on, Green	Poor contact / operation abnormal:
and Red LED off.	1. Check power cable connection.
	2. Need troubleshooting. Contact your local
	dealer for service.
After power on, Green	Fail self diagnostic test:
and Red LED flash.	1. Check if there is IC on socket (Should be
	removed).
	2. Need troubleshooting. Contact your local
	dealer for service.
After power on, Green	Fail ALL-100A memory diagnostic test:
LED off but Red LED flash.	1. Try to power on again.
	2. Need troubleshooting. Contact your local
	dealer for service.
After power on or during	Fail USB connection check:
programming, Green LED	1. Check USB cable connection.
flash but Red LED off.	2. Check PC BIOS setup to see if USB is disabled
	(Should be enabled).
	3. Need troubleshooting. Contact your local
	dealer for service.
During programming,	USB communication error:
Greend LED on but Red	1. Check USB cable connection.
LED flash.	2. Need troubleshooting. Contact your local
	dealer for service.
During programming,	USB data trasmission interrupted:
Green LED on but Red LED	1. Check USB cable connection.
become orange color.	2. Check if PC is interrupted.
	3. Need troubleshooting. Contact your local
	dealer for service.

8. Glossary

8.1 EPROM, EEPROM, BPROM, and MPU

Programmable device: An integrated circuit (IC) that can be programmed.

Bit, Nibble, Byte, Word, Double Word

Bit : A basic unit of binary data.

- Nibble : A groug of 4-bit binary data. A nibble ranges from 0H to FH.
- Byte : A group of 8-bit binary data. A byte ranges from 0H to FFH.
- Word : A group of 16-bit binary data. A word ranges from 0H to FFFFH.
- Double word : A group of 32-bit binary data. A double word ranges from 0H to FFFFFFFH.

Buffer

There is 4 Mbit memory buffer in ALL-100A/AP/AG Programmer. IC driver file can automatically allocate/arrange these 4Mbit memory space for programming depending on IC memory size and read/write needs.

When data needs to be programmed to IC, data needs to be loaded to programmer buffer first and then program to IC. When data is read from Master IC, the data is also stored in programmer buffer, it can then be edited or saved to disk for future use.

Buffer Start and Buffer End Address

It specifies the start and end addresses in programmer buffer in which data is to be programmed to IC in sequence. This is also the area that data is used for Checksum calculation.

CheckSum

This is the SUM of all data contents between buffer start and buffer end addresses. All data are added and the least significant 16 bits (4 HEX) are displayed as the Checksum. (Some data in some ICs might not be covered in Checksum calculation.) Checksum will be calculated after IC reading, file loading, type changing, or buffer editing.

Bit Count of data

A NIBBLE contains 4-bit data. A BYTE contains 8-bit data. A WORD contains 16-bit data.

MPU is normally in 8 or 16 bit width, but still have some in 12 or 14 bit width.

Device Start and Device End address

It specifies the start and end addresses inside IC device. During IC programming, data stored in programmer buffer will be written to this specified area.

USB interface

USB, Universal Serial Bus, is a high-speed data transmission bus initiated by Intel and then supported by NEC, IBM, MicroSoft, Compaq,...etc. It is now a data transmission standard between PC and peripheral devices.

V1.0 / 1.1	USB Low-Speed	:	1.5 Mb/s
V1.0 / 1.1	USB Full-Speed	:	12 Mb/s
V2.0	USB High-Speed	:	480 Mb/s

Security fuse

Security fuse is available in most of programmable ICs. Once the Security fuse has been blown, the data stored in IC can not be read out correctly and IC can not be programmed either. However, IC can still operate functionally no matter the Security fuse has been blown or not.

Note: Once the Security fuse has been blown. IC data can no longer be read out or programmed correctly, please doublecheck before programming Security fuse.

Lock bits

Some MCU/MPU use Lock bits to protect data programmed. Normally user has options to select individual Lock bit to protect different area of memory data. Please refer IC data sheet for definition of Lock bits.

Encryption

Some MCU/MPU use Encryption code for data protection. If an IC has been programmed with Encryption code, then a correct decryption code must be given to read the correct data.

Protection Fuse

Some FLASH memory use Protection fuse for data protection. It can prevent data change from accident programming. The Protection fuse must be reset to Unprotection state, if the programmed data need to be changed. The default state of Protection fuse is Unprotection.

8.2 PLD, PAL, GAL, PEEL, CPLD, EPLD, and FPGA

■ Programmable Logic Device (PLD)

PLDs are usually grouped into following five categories:

- PLD : A one time Programmable Logic Device such as PAL.
- EPLD : A UV Erasable PLD such as EPLD, CPLD, and FPGA.These devices have transparent window on top of package for UV light exposure.
- EEPLD : An Electrically Erasable PLD such as GAL, PEEL, CPLD, and FPGA.
- CPLD : A more complex PLD device.
- FPGA : Field Programmable Gate Array.

■ JEDEC fuse map file of PLD

JEDEC fuse map file is a standard format used for PLD programming. It contains fuse information and functional test vectors of PLD to be programmed. Most PLD assemblers or compilers such as PALASM, OPAL, CUPL, ABEL, AMAZE, and PDK-1, can create JEDEC fuse map file.

POF fuse map file of PLD

POF fuse map file is a format used for ALTERA PLD programming. POF file can store more programming data than JEDEC file.

Fuse blown and intact

Most of unprogrammed (blank) PLD have fuses in intact (connect) state. After programming, PLD fuses are blown to open state. For one time programmable PLD, once fuses are blown (opened), they can not be changed back to intact (connect) state. However, the UV erasable PLD can be erased to change fuses back to intact (connect) state by UV light exposure and the electrically erasable PLD can be electrically erased to change fuses back to intact (connect) state by using Erase function on this Programmer.

Array fuse, Configuration fuse

Array fuses are the main logic fuses in a PLD. Different types of PLD have different logic function arrangement. Configuration fuses define the I/O architecture of a PLD such as Combinatorial/Registered, Output feedback/Output enable, and so on. Generally, user do not have to understand the details of these fuses because logic compiler will automatically translate logic statements and equations into JEDEC format file.

Security fuse

Most of PLD have Security fuse. Once Security fuse is blown, data in PLD can no longer be read out correctly. Generally, the PLD will be read as blank if Security fuse is blown. Note:

Caution : USB Interface Compatibility

- For USB 2.0 compatibility, the revision of your computer operation system should be no earlier than following editions : Windows 2000 SP4/XP SP1/Server 2003/Vista/7
- Software incompatible may happen if your computer uses any one USB Host Controller from following :
 - Compaq PCI to USB Open Host Controller
 - VIA Tech PCI Universal Serial Bus Host Controller
 - VIA Tech 3038 PCI to USB Open Host Controller
 - SiS 7001 PCI to USB Open Host Controller
 - OPTi 82C861 PCI to USB Open Host Controller
- How to check the PCI to USB Controller your computer used :
 - Please go to [Start] [Settings] [Control Panel] to click on [System]
 - Then select [Device Manager], Click on [Universal Serial Bus Controller]
 - Check the Universal Serial Bus Controller shown is within above list or not
- In case your USB interface card is incompatible with ALL-100A, suggest you to use the USB interface card we approved and recommended. Please refer to "optional accessory" in ALL-100A data sheet or contact HI-LO distributors for further information.

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Contents

1. Introduction	1
1.1 Programmer and Accessories	1
1.2 PC System Requirements	3
1.3 ALL-100A/AP/AG Specification	4
2. Single ALL-100A/AP/AG Installation	.5
2.1 Hardware Installation	.5
2.1.1 ALL-100A/AP/AG Hardware Installation and	
Applications	.6
2.2 USB Driver Installation	10
2.3 Software Installation	15
3. ALL-100A/AP/AG Basic Operation	18
3. ALL-100A/AP/AG Basic Operation	18 18
 3. ALL-100A/AP/AG Basic Operation 3.1 Getting Started	18 18 18
 3. ALL-100A/AP/AG Basic Operation. 3.1 Getting Started. 3.1.1 Start with XACCESS/GACCESS.EXE. 3.1.2 Entries to Programming Driver. 	18 18 18 19
 3. ALL-100A/AP/AG Basic Operation. 3.1 Getting Started. 3.1.1 Start with XACCESS/GACCESS.EXE. 3.1.2 Entries to Programming Driver. 3.1.3 Enter Main Menu of the driver. 	18 18 18 19 22
 3. ALL-100A/AP/AG Basic Operation. 3.1 Getting Started. 3.1.1 Start with XACCESS/GACCESS.EXE. 3.1.2 Entries to Programming Driver. 3.1.3 Enter Main Menu of the driver. 3.2 Load file to Programmer buffer. 	18 18 18 19 22 23
 3. ALL-100A/AP/AG Basic Operation. 3.1 Getting Started. 3.1.1 Start with XACCESS/GACCESS.EXE. 3.1.2 Entries to Programming Driver. 3.1.3 Enter Main Menu of the driver. 3.2 Load file to Programmer buffer. 3.3 Read contents from Master IC to buffer. 	 18 18 18 19 22 23 24
 3. ALL-100A/AP/AG Basic Operation. 3.1 Getting Started. 3.1.1 Start with XACCESS/GACCESS.EXE. 3.1.2 Entries to Programming Driver. 3.1.3 Enter Main Menu of the driver. 3.2 Load file to Programmer buffer. 3.3 Read contents from Master IC to buffer. 3.4 Program buffer contents to IC. 	 18 18 19 22 23 24 26
 3. ALL-100A/AP/AG Basic Operation. 3.1 Getting Started. 3.1.1 Start with XACCESS/GACCESS.EXE. 3.1.2 Entries to Programming Driver. 3.1.3 Enter Main Menu of the driver. 3.2 Load file to Programmer buffer. 3.3 Read contents from Master IC to buffer. 3.4 Program buffer contents to IC. 3.5 Modules, TOPs. 	 18 18 19 22 23 24 26 27

4. Multiple ALL-100A/AP/AG Installation	29
4.1 Multiple ALL-100A/AP/AG Operation	30
4.2 Read/Compare on Multiple ALL-100A/AP/AG	. 32
5. ALL-100AG Gang Option Installation	34
5.1 ALL-100AG Gang Operation	35
5.2 Read/Compare on Multiple ALL-100AG Gangs	36
6. ALL-100A/AP/AG Software Description	37
6.1 XACCESS/GACCESS User Interface	37
6.2 Enable/ Read Job Function	.38
6.2.1 Save your Job File	.38
6.2.2 Read your Job File	.38
6.2.3 Enable Log Function	
6.3 Diagnostic Tester	.40
6.4 Utilities	41
6.4.1 Hex to Bin Converter	41
6.4.2 Bin to Hex Converter	42
6.4.3 2-way splitter	43
6.4.4 4-way splitter	44
6.4.5 2-way shuffler	45
6.4.6 4-way shuffler	46
6.4.7 Version List	47

6.4.8 Cross Reference	
6.4.9 Device List	49
6.5 Protect Mode	50
6.5.1 Protect Mode Password	51
6.5.2 Protect Mode Option	52
6.5.3 Reset Protect Mode Option	52
6.6 Programming Data /Function Description	53
6.6.1 File	55
6.6.2 Edit	60
6.6.3 Operation	73
6.6.4 USB Info	
6.6.5 About	
7. ALL-100A/AP/AG Troubleshooting	87
8. Glossary	88
8.1 EPROM, EEPROM, BPROM, and MPU	
8.2 PLD, PAL, GAL, PEEL, CPLD, EPLD, and FPGA	92

ALL-100A /AP/AG Universal & Gang Programmer User's Manual

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