
GANGSTAR PRO-848

GANG PROGRAMMER

USER MANUAL

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How to use this manual

Thank you for purchasing the **GANGSTARPRO-848 Turbo Gang Programmer**. We designed this manual to help you quickly and easily set up and use your GANGSTARPRO-848. You can use the manual in two ways:

Step by step:

The manual should be used in conjunction with the On-line help contained in the GANGSTARPRO-848 software. Once you've installed the GANGSTARPRO-848 and the software, you shouldn't need this manual again. You can just press 'F1' in the program and context sensitive help will guide you through the processes.

Quick Start:

Our special Quick Start section gives experienced users the information they need to setup the GANGSTARPRO-848 and software, and basic guidelines on using the GANGSTARPRO-848. If you need more information, you can refer to the rest of the manual. If you have any problems, you can work through the manual step by step for easy troubleshooting.

If you have any questions, feel free to call your local distributor or sales representative.

Software update:

Please visit our website at www.aec.com.tw to update the software.

Packing list

Before you begin installing your GANGSTARPRO-848, please make sure that the following materials have been shipped:

- 1 GANGSTARPRO-848 turbo gang programmer
- 1 Power cord
- 1 parallel cable
- 1 USB cable
- 1 CD-ROM containing the Windows software

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CHAPTER

Quick Start

Quick Start

- 0-1) This CD-ROM only has GANGSTARPRO-848's parallel port software.**
- 0-2) The parallel port must be EPP mode or ECP mode or BPP mode, the EPP mode is recommended.**
- 0-3) You could download the USB software “β version” from AEC website: www.aec.com.tw**
- 1) The GANGSTARPRO-848 must be turned off before you install its software.**
 - 2) Install GANGSTARPRO-848's software then restart your PC or notebook.**
 - 3) Turn on your GANGSTARPRO-848 and run its software.**
 - 4) Select the chip type to be programmed first.
Use the Hot key “ALT-C”, then type the complete part number of the chips to be programmed; or use the mouse to select the correct part number.
 - 5) Load the design file into the buffer.
Use the Hot key “ALT-L”, then specify the origin of the file and load.
 - 6) Alternatively, you can read a master chip into the buffer instead of a design file.
The default master socket is socket 0. By putting a chip into socket 0 and performing the Read operation (Hot key ALT-R), you can transfer the chip's contents into the buffer.
You can also select any socket as the master socket. Go to the main menu, select the module options (Hot key F5), then set the master socket, insert a master chip into the master socket, and perform Read.
 - 7) Insert 8 chips of the same type into the 8 ZIF sockets, set the device operation option (Hot key F4), then perform Program (Hot key ALT-P). You can now program the 8 chips simultaneously.
 - 8) To speed up throughput, a user can change the mode to Mass production mode (Hot Key Alt-M). After entering this mode, the GANGSTARPRO-848 will program chips automatically after they are properly inserted into the socket. GANGSTARPRO-848 has both a standard mass production mode and a concurrent mass production mode. Standard mode allows the GANGSTARPRO-848 to program 8 devices at the same time. Concurrent mode divides the 8 sockets into two groups, group 1 comprised of sockets 0-3 and group 2 comprised of sockets 4-7. Chips in group 1 can be programmed while chips are inserted or unloaded in group2. After the programming of chips in group1 is finished, GANGSTARPRO-848 automatically programs the chips in group2.
A user can enable the insertion timer and adjust the timer. Enabling the timer will allow GANGSTARPRO-848 to automatically shutdown a poor contact socket upon timeout of a user-set timer period. GANGSTARPRO-848 then automatically programs the chips in the remaining good sockets. The insertion timer default setting is 5 seconds. When the insertion timer is disabled, the user will have to either correct the insertion error or press the ignore key to continue programming after a poor contact socket is discovered.
 - 9) GANGSTARPRO-848 also automatically keeps a running total of all chips that have been through programming and all chips encountering programming failures. A user can input a target quantity of chips to be programmed and an allowable number of programming failures. An alarm message option provides a message to the screen alerting the user to either the target quantity of chips being reached, or the allowable number of failures being reached.
 - 10) For a detailed explanation of the device operation options, please refer to Chapters 3 and 4.

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CHAPTER

General Information

Introduction

The GANGSTARPRO-848 is a PC-based gang programmer that works through your PC's parallel port. It features eight fully isolated 48-pin ZIF sockets, extremely high throughput, standard 5 V and 3 V chip support, production piece counts, and device insertion and continuity checks, all within a PC-based design. Device updates are disseminated through software, giving our customers quicker and more flexible access to new chip support. GANGSTARPRO-848 future software updates in EPROM, EEPROM, and FLASH technology will include 87C5x, 89C5x, and PIC16Cxx microprocessor support. The GANGSTARPRO-848 was designed with flexibility in mind. If a customer has special chips that are not in our standard support list, we can provide special programs which will allow the GANGSTARPRO-848 to perform as a customized special production gang programmer.

Features

Universal adapter for Flash chips

The GANGSTARPRO-848 is designed to meet your future needs in high density Flash chips. Using the resources of your PC, it supports 32 K bit up to 256 M bit memory chips without upgrading its hardware. The GANGSTARPRO-848 also has a universal adaptor which accommodates 48-pin TSOP, 44-pin PSOP, 40-pin TSOP, and 32-pin TSOP Flash chips, which eliminates the need to buy multiple adapters and saves you money.

Unbeatable speed through semi-concurrent programming technology

The GANGSTARPRO-848's on-board intelligence reduces system overhead to a minimum. It can program eight Flash chips of 8 MB capacity (such as Intel 28F800B3, for example) within 45 seconds. An experienced programmer can program thousands of high-density chips per day. Furthermore, the GANGSTARPRO-848 supports two programming modes. In standard programming mode, the GANGSTARPRO-848 automatically programs all eight chips after all eight pieces have been inserted into the sockets. In semi-concurrent programming mode, a user can divide the 8 sockets into two groups (of 4 sockets each). By using the technique of programming 4 chips while simultaneously removing and inserting the other 4 chips, a customer can increase throughput. This also allows interface with the fine pitch pick and place handler for high-density fine pitch chips.

Statistic Functions

The GANGSTARPRO-848 automatically keeps a running total of all production pieces attempted and all production pieces failed. Users can input a target quantity of chips to be programmed and an allowable number of failures. An alarm function can be enabled to send a message to the screen alerting the user to either the target quantity of chips being reached, or the allowable number of failures being reached.

Fully isolated ZIF sockets

The GANGSTARPRO-848 has fully isolated (> 1 M ohms) circuits for each socket's address/data bus/control lines. Each socket has its own built-in Vcc and Vpp current-limiting circuitry. A defective device in one socket will not affect the devices in or programming integrity of the remaining sockets.

Device-insertion and continuity checks - No mistakes!

The GANGSTARPRO-848 performs device-insertion and continuity checks before programming each device. It can detect poor pin contact, upside-down device insertion, incorrect position, and pin number mismatch. This function protects your pocketbook by preventing expensive chip damage caused by operator error.

Auto-sensing and self-programming

The GANGSTARPRO-848 has implemented patented technology to meet mass-production requirements. When a chip fails the device insertion check, the GANGSTARPRO-848 waits for an operator adjustable time. If the operator fails to correct the improper insertion within the selected time period, the socket with the improper insertion is shutdown and the other chips are automatically programmed.

Independent module design

The GANGSTARPRO-848 is designed to achieve a minimum of down time. Its 8 sockets are divided into 4 identical modules having two sockets each. Each module is independent of the other three modules. If one module fails, the customer can continue to operate the other three modules without sacrificing the turnaround time to repair. Extra modules are available to customers in spare kits.

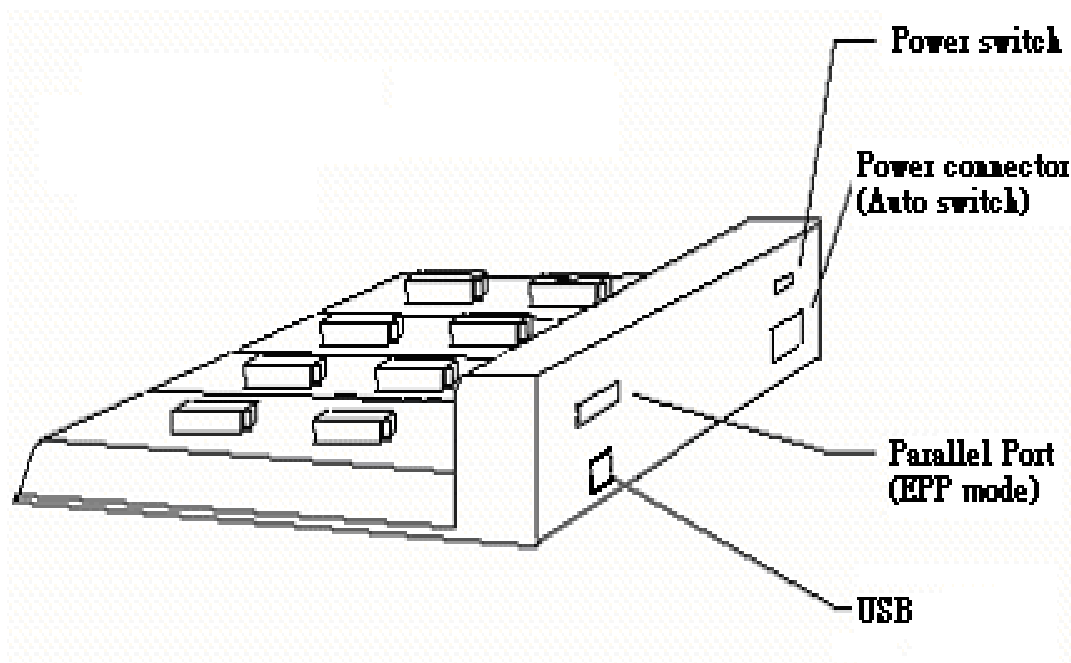
Project file "Save and Load"

You can save the program configuration project file which contains the device selection, the buffer data and all of the program setup options. This file can be recalled at any time for future use without having to go through the setup procedure again. This allows you to pass your design file to the production department without mistakes. You can also read the data from a device into the buffer from any of the 8 sockets, according to your specification.

Variable V_{CC} with one or two-pass verification

The GANGSTARPRO-848 allows users to select the verification voltage after chip programming is completed, e.g., V_{CC} +/- 5%, V_{CC} +/- 10%. V_{CC} can range from 2 V to 7.5 V. Verification ensures that the chips have been properly programmed, with no data retention problems.

GANGSTARPRO-848 Diagram



Device support summary

General EPROM: 27xxx series 32 K to 32 Mb with 8/16 bit data width.

Flash EPROM: supports NOR, NAND, AND, DI-NOR, and EEPROM technology

29xxx, 5 V / 3 V Flash, 28Fxxx 12 V / 5 V / 3 V Flash from all major chip vendors.

Microprocessor: (Future release through software update)

Intel 87C5x compatible, ATMEL 89C5x compatible, Micro chip PIC16Cxx.

Specification:

Socket and pin driver:

8 fully isolated 48 pin ZIF sockets with receptacle, over 1 M ohm resistance between each socket.

Four DACs for V_{CC} , V_{PP1} , V_{PP2} and V_{PP3} with 8 bit resolution.

V_{CC} range 2 V to 7.5 V, resolution 50 mV

$V_{PP1, 2 \text{ \& } 3}$ range 5 V to 16 V, resolution 100 mV

Overcurrent protection on all voltage sources

Logic level 5 V to 2.7 V programmable by software

Device Operation: Read, blank check, insertion/contact check, verify, check sum, erase chip, program, memory protect, edit buffer, configuration, load file, save file, project file load/save

File format: Binary, Intel HEX, Intel extend HEX, Motorola S, HP64000ABS, TEK HEX, straight Hex

General

Power: 100 V_{AC} to 240 V_{AC} , 47-63 Hz auto switch

Power consumption: 65 W

Operation temperature: 5 to 45 °C (41 to 113 °F)

Safety: CE & LVD certified

Weight: 8.5 kg net, 10 kg shipping weight

Using the GANGSTARPRO-848 Software

Menus

Accessing the menus can be done in two ways:

Use the **mouse** and click on the menu option displayed at the top of the screen. A pull-down menu will appear, and you can select the option you desire by clicking on that option.

If you do not have a mouse available, you can also use the **keyboard** to access the menus. Press [F10] to activate the main menu bar.

Select the sub-menu that you want to use with the left and right arrow keys, and press <ENTER> to activate the sub-menu. Use the up and down arrows to select an option to execute. Press <ENTER> to execute the command.

Hot-keys

Most of the options available on the menu can also be executed by pressing the hot-key associated with that option. To see what the hot-key is for a certain option, look on the menu where the option is located. If a hot-key is available, it will be displayed next to the option name.

[EDITOR'S NOTE: SEE DIAGRAM IN ORIGINAL MANUAL!!]

Hot Keys

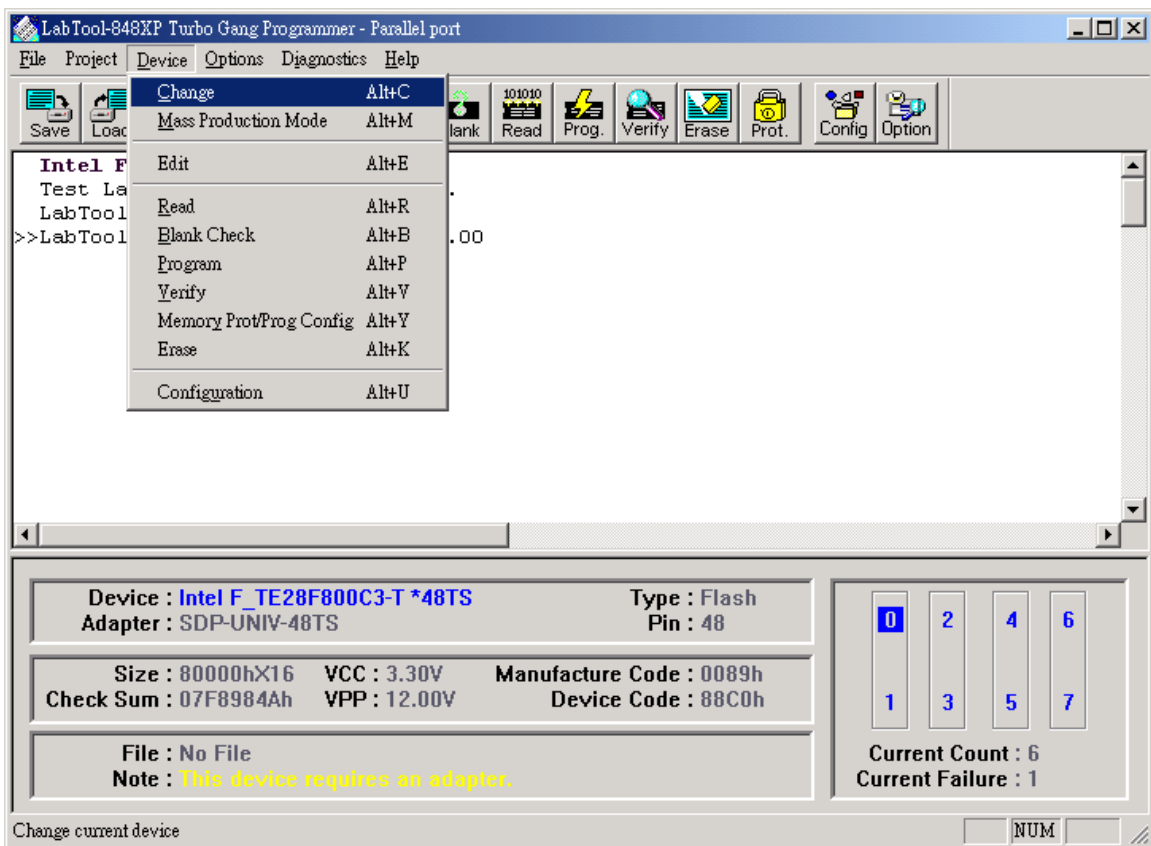
Main Menu

Sub Menu

Device Information

Information Line

Statistics



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CHAPTER

Installation

Minimum PC System Requirements

O.S.: (1) Parallel port : Win 95/98/ME, Win 2000, Win XP, Win NT 4.0 or latest
(NT OS system, need NT System ADM).

(2) USB : Win 98/ME, Win 2000 SP4, Win XP SP1/SP2 or latest.

CPU: PII 750 and above

RAM: 64 MB minimum, 128 MB recommended

HD: 16 MB of free hard disk space.

Interface: (1) D-25 connector with parallel port EPP or ECP mode, **EPP mode recommended**

(2) USB 1.0/1.1/2.0, **USB2.0 recommended**

Installing the GANGSTARPRO-848 Software

Insert the CD into the PC's CD-ROM E: Drive.

In the file manager, you can select the **E:\LT848XP\Setup** and hit Enter; it will create a directory called WLT848XP on your computer's C:\Program Files\AEC path and will install the GANGSTARPRO-848 software in this directory.

Following successful installation, restart your PC then run the software.

Installing the GANGSTARPRO-848

1. Switch the PC and the GANGSTARPRO-848 off. Win
2. Connect the GANGSTARPRO-848 to a parallel port using the cable supplied.
3. Switch the PC on.
4. Switch the GANGSTARPRO-848 on.

Upgrading the GANGSTARPRO-848 Software

We provide quarterly formal releases of the GANGSTARPRO-848 software on our website. Monthly temporary releases are also available on our website. Please download releases from our website at: www.aec.com.tw

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CHAPTER

Command Hierarchy

GANGSTARPRO-848 Command Hierarchy

File (ALT-F)	Save Buffer	ALT-S
	Load File	ALT-L
	Change Dir	
	Dos Shell	
	Exit	ALT-X
Project (ALT-J)	Save Project	ALT-F1
	Load Project	ALT-F2
Device (ALT-D)	Change	ALT-C
	Mass Produce	ALT-M
	Edit	ALT-E
	Read	ALT-R
	Blank Check	ALT-B
	Program/Auto	ALT-P
	Verify	ALT-V
	Memory Protect	Ctrl-P
	Erase	Ctrl-E
Configuration	Ctrl-G	
Options (ALT-O)	Modify Algorithm Parameters	F3
	Device Operation Options	F4
	Module Options	F5
Statistic (ALT-A)	Statistic Option	ALT-T
	Reset Counter	ALT-N
Diagnostics (ALT-I)	Self-Test	F6

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CHAPTER

Operation

LED Display on Each Socket

Each of the 8 sockets in the GANGSTARPRO-848 has a three-color LED display to indicate the status of the socket. Read this section carefully to avoid damage to chips.

Warning: *Do not insert or remove a chip from a socket while the socket LED is yellow!*

LED color key

Blank	the socket is not active.
Green	the socket is active or the last operation result passed
Yellow	the socket is busy; don't do anything until the LED turns Green or Red.
Red	the last operation resulted in failure; the socket is active and awaiting another operation.

Flashing LED, 5 Hz frequency. This mode only applies to insertion and contact checks of the chips in the socket.

Flashing Green	the chip passed the continuity check.
Flashing Yellow	the socket is active and waiting for a chip to be inserted.
Flashing Red	the chip failed the insertion/continuity check, due to poor contact, incorrect chip positioning, pin count mismatch, chip upside-down, pin short-circuit, or chip damage.

File Commands

Save Buffer

Menu	File Save Buffer
Hot-key	Alt-S

This option is used to save the memory buffer to a file on the hard disk.

Select a file (to overwrite!) using the mouse, or type the file name in the box provided. You can also type in a file spec. (e.g. *.hex) at the *Name* prompt. This will display all the files of the specified type, and you can then select the required file to *overwrite*.

ViewText

Certain file types contain header information. Click on this box to see this information. This will display information similar to the following:

```
ABEL(tm) 3.00a FutureNet Div, Data I/O Corp. JEDEC file for: P16V8R
Created on: 15-Sep-94 04:17 PM
PROM8908 pin configuration Ver 3.0
ADVANTECH CO. LTD. 4 NOV 1991*
QP20* QF2194*
L0000
011011111111111111111111111111111111
0000000000000000000000000000000000
```

Output File Format

Select the file format of the output file.

From File Address

If only a selected range is to be read from the input file, fill in the address that will contain the first byte into this box, and the size of the buffer to be read in *Size*.

To Buffer Address

If the data read is to be copied into a specific area of the buffer, fill in the starting address here.

Size

This box contains the buffer size. By default it is the same size as the device size. If you want to download a file into memory that is bigger than the active device, insert the size here (or in Options | Operation Options).

Clear Buffer Options

Four options are available during memory buffer data loading. The default option is to clear the buffer to its blank state prior to data loading.

Disable

This option leaves the original buffer data unchanged, but then overwrites it with the contents of the newly loaded file.

Blank state

This option clears the buffer to the device blank state (using command 00 or FF, depending on device selection), then overwrites the buffer during file loading.

0x00

First clears the buffer of its contents using command 00, then overwrites the buffer with the new file contents

0xFF

First clears the buffer of its contents using command FF, then overwrites the buffer with the new file contents.

Change Directory

Menu	File Change Directory
Hot-key	None

Change the default directory to another directory.

Exit to Window

Menu	File Exit to Window
Hot-key	Alt-X

Quit the GANGSTARPRO-848 program and exit.

Project Commands

Save Project

Menu	Project Save Project
Hot-key	Alt-F1

This option saves the current setup of the GANGSTARPRO-848 software into a project file. The file includes devices selected, buffer data, operation options setup and device configuration setup. You can also attach a footnote to this project file. The project file acts as a macro, eliminating the need to go through each procedure during future programming sessions.

Load Project

Menu Project | Load Project File
Hot-key Alt-F2

This option loads the desired project file. After the project file has been loaded, you can immediately program the chip using the data and setup functions selected.

Device Commands

Change Device

Menu Device | Change Device
Hot-key Alt-C

This option is used to select a new device as the active device. It is important to select the correct device, as the algorithms used to program devices are device-specific. The following screen will appear:

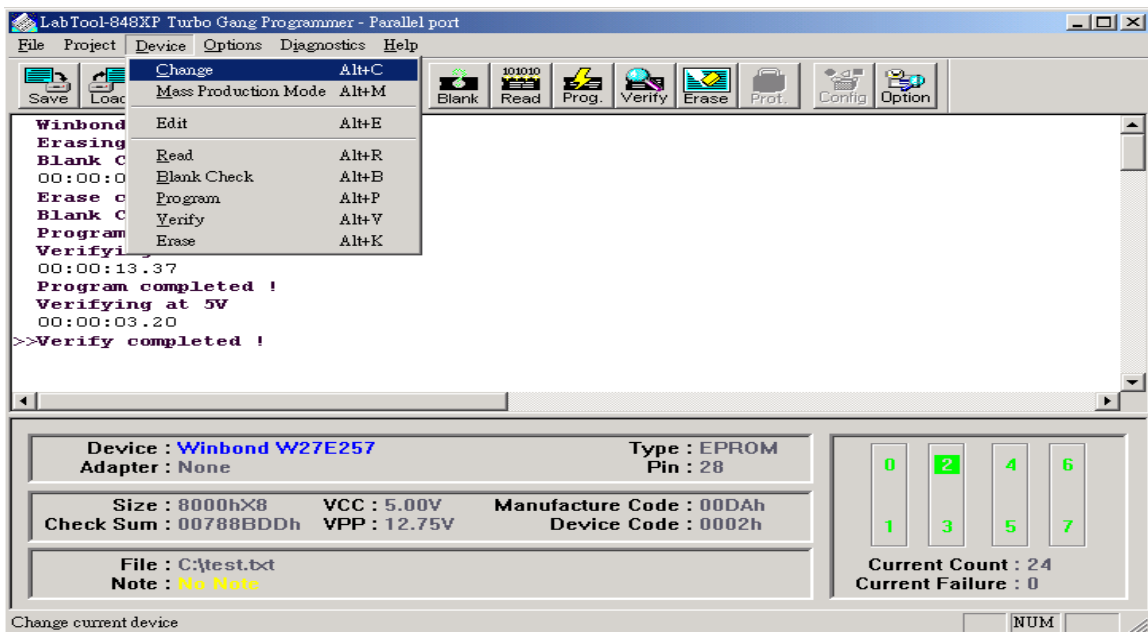


Figure 4.1 Screen for selecting Change Device

1. Select the type of device that will be the active device.

Mouse

Click on 'All', 'EPROM' or 'Flash' or 'MCU'.

Keyboard

Press TAB until the cursor is flashing in the 'Type' box. Use the up and down arrows to go to the appropriate type. Press the space bar to select the type.

2. Enter the part number, the manufacturer number, or parts of both in the 'Search' box.

Mouse

Click on 'Search'. Type in the characters.

Keyboard

Press TAB until the cursor flashes in the 'Search' box. Type in the known characters.

All the devices that satisfy this partial information will be displayed.

Use the mouse to select a device, and click 'Ok'. If you are not using a mouse, use the TAB key to skip between the various screens, and use the arrow keys to move around in each screen.

Mass-production Mode

Menu Device | Mass Produce
Hot-key Alt-M

The GANGSTARPRO-848 is a mass-production programmer for manufacturing. When placed in mass production mode, all keyboard and mouse functions are disabled and the operator needs only to insert the chips into the ZIF sockets, wait until the green LED next to each socket lights up, remove the programmed chips and insert new chips. Anyone can do the job well without special training or skills. Since all keyboard and mouse functions are disabled, the possibility of errors being caused by pressing the wrong keys or changing the buffer's contents are eliminated.

In mass production mode, the GANGSTARPRO-848 first performs an insertion test and an ID check on newly inserted chips. It then automatically programs the chip. In mass production, the GANGSTARPRO-848 can be set to either of two modes: standard mode or concurrent mode. In standard mode, GANGSTARPRO-848 programs the devices in all 8 ZIF sockets at one time. In concurrent mode, on the other hand, the sockets are divided into two groups. Sockets 0-3 comprise group1 and sockets 4-7 comprise group 2. During operation under concurrent mode, group 1 devices are being programmed while the operator unloads and inserts chips in the group 2 sockets.

Note: *The insertion test must be enabled to use mass-production mode!*

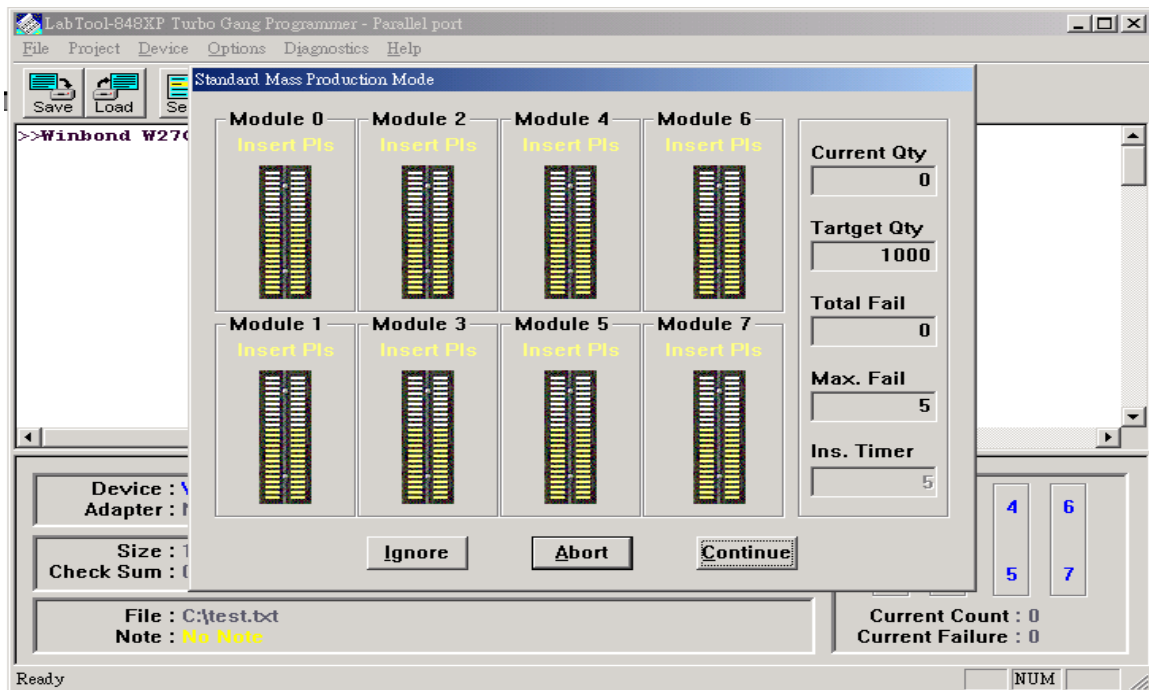


Figure 4.2 Standard mass production mode screen

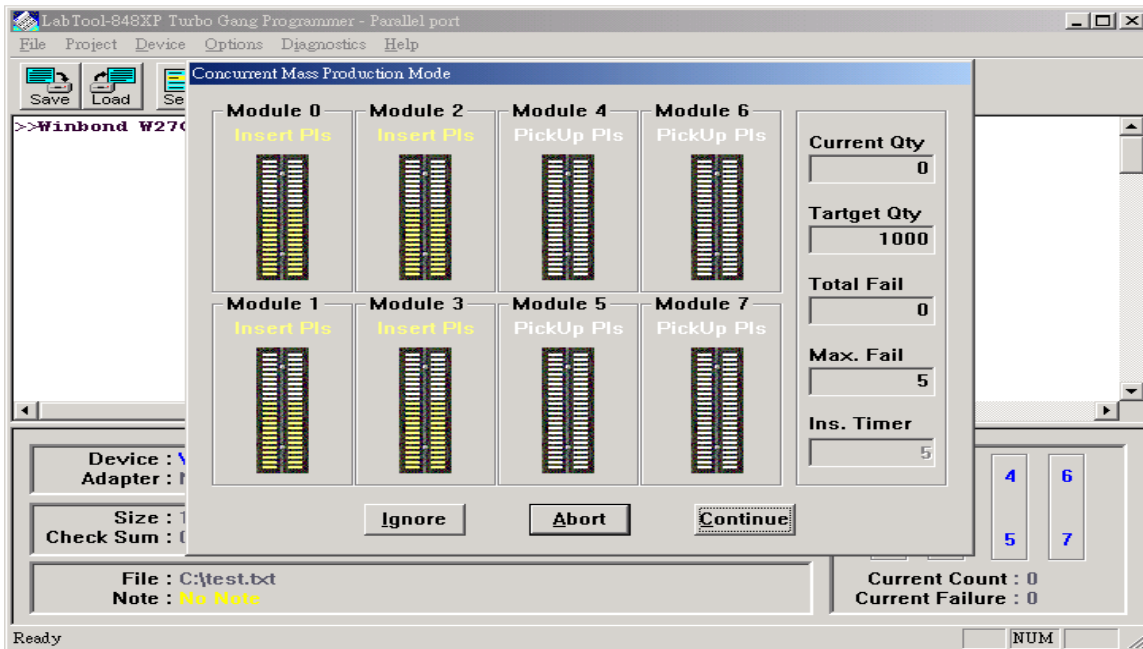


Figure 4.3 Concurrent mass production mode screen

An insertion timer is included for use with the insertion test. When a chip fails an insertion test and the insertion timer is disabled, the GANGSTARPRO-848 will alert the operator to the failure and require either that the problem be corrected or that the operator acknowledge the failure before continuing with programming. When a chip fails and the insertion timer is enabled, the GANGSTARPRO-848 waits the amount of time set into the insertion timer. This is to give the operator time to correct the error. If the error is not corrected in time, the error socket shuts down and all the devices in good sockets are programmed. The insertion timer default time is 5 seconds.

Editing the Buffer

Menu Device | Edit
Hot-key ALT-E

This function is used to edit the memory buffer. The memory buffer contains the last file downloaded from disk into memory. If no file has been downloaded from disk into memory since the GANGSTARPRO-848 was switched on, the memory buffer will contain "garbage".

The screen that is displayed is dependent on the type of device that is currently active.

The purposes of the buttons displayed are as follows:

Radix

This button controls the display of the memory address in Hex/decimal format. If the address is currently displayed in decimal format, clicking this button will convert and display the address in Hex.

Fill

This option is used to fill a block of memory with a specified value. It needs the starting address, the ending address and the value to be copied into this block of memory.

Copy

This function copies a block in memory to a new address. It requires the starting address, the ending address and the address the block must be copied to.

Search

This function searches for a specified "search-string". It requires input of the search-string to search for.

Undo

As you make changes to the memory buffer, the changes on the current page are highlighted. If you choose this option, it will reverse all changes made to the highlighted areas.

As soon as the changed memory positions move off the screen, or get deselected by another command, the Undo command will not undo the changes.

Blank checking a device

Menu Device | Blank Check
Hot-key Alt-B

This option checks if the active device is in its erased state. It will return a message stating "Device not blank!" at the first occurrence of data in the device. The address where the data is found will also be displayed.

Reading a device

Menu Device | Read
Hot-key Alt-R

This option reads a master chip into the memory buffer for duplication of the master chip. Prior to executing this command, a master socket must be designated and the master chip inserted into the master socket. The default master socket is socket 0.

Programming a device

Menu Device | Program/Auto
Hot-key Alt-P

This option programs the active device with the contents of the memory buffer. When the programming is complete, verification will take place. The type of verification depends on the 'verification options' set in the Options|Operation options menu.

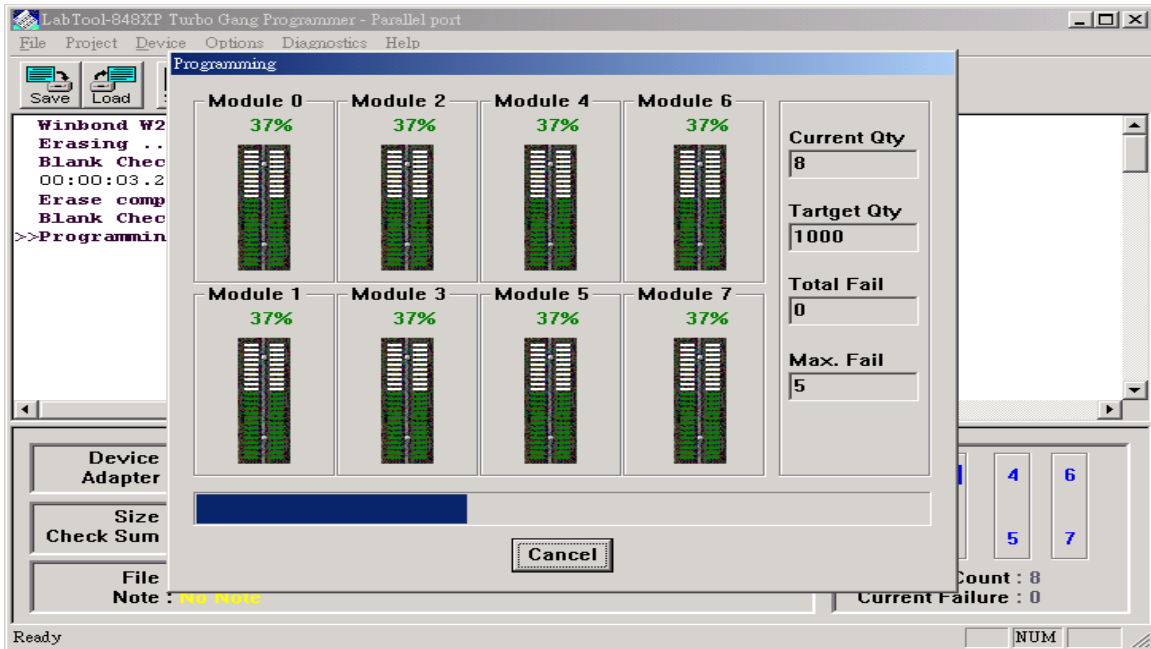


Figure 4-4 Programming progress screen

Verifying a device

Menu Device | Verify
 Hot-key Alt-V

This function compares the contents of the active device with the contents of the memory buffer. It will display an error message and the address if it finds an address where the data differs. It will also abort the process when this happens.

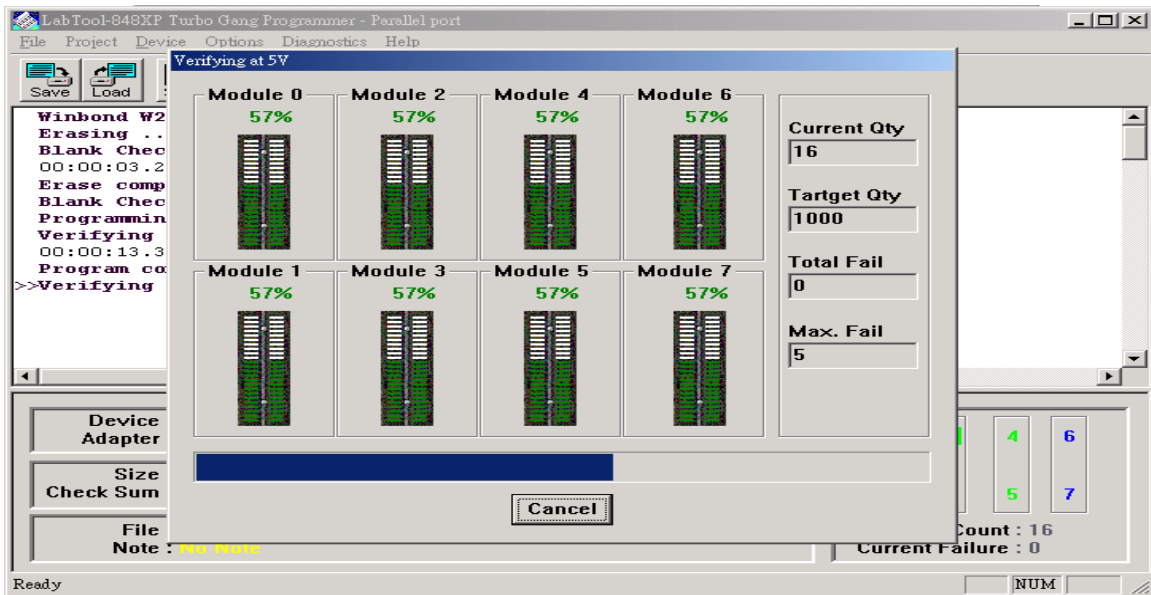


Figure 4-5 Device verification screen

Memory Protect

Menu Device | Memory Protect
Hot-key CTRL-P

This function is a device-specific command; it appears on the main menu only after chips having this capability are selected. The function must be configured before use. When properly configured, it can be selected and will automatically set memory protection on the chips immediately after they have been programmed.

Erasing a device

Menu Device | Erase
Hot-key CTRL-E

This function is a device-specific command; it appears on the main menu only after electronically erasable chips have been selected. The function can be used to erase a desired memory range from a chip.

Configuration

Menu Device | Configuration
Hot-key CTRL-G

This function is a device-specific command for a single Flash chip with a software protect block, an option register, configure word and lock bit. The function must be configured before use. When used, the memory protect configuration data will be burned into the chip's memory and will protect specified memory blocks.

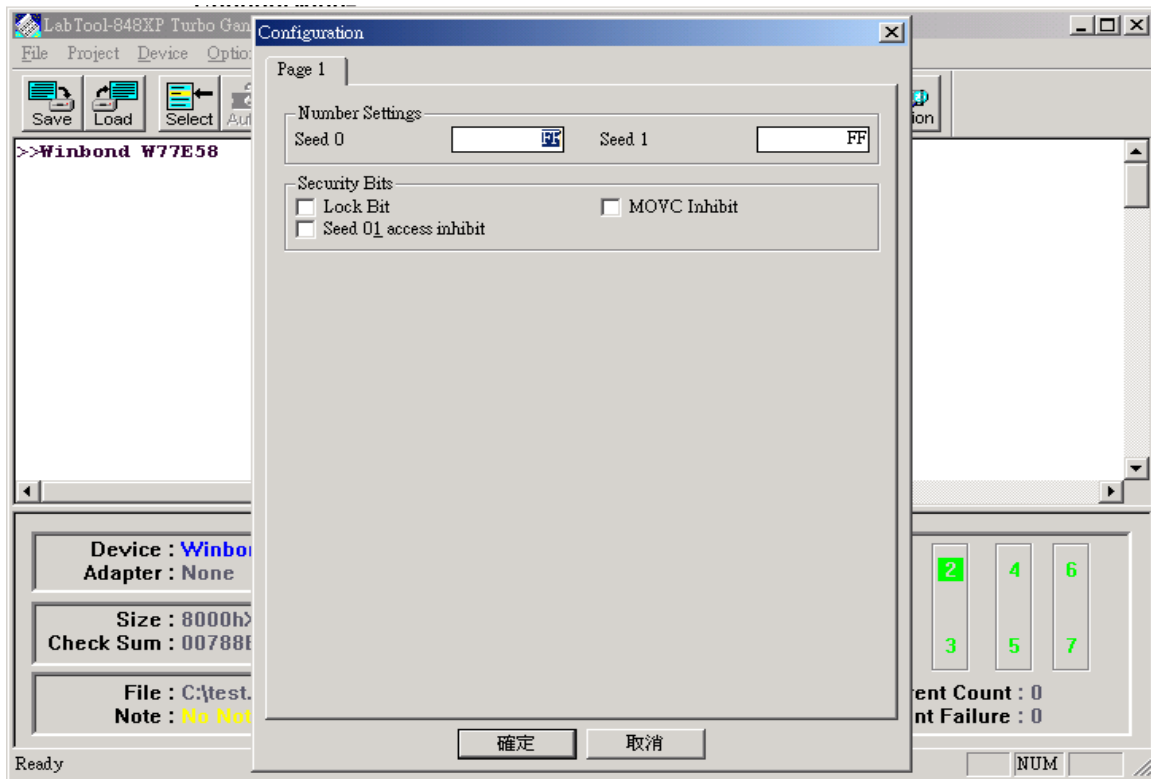


Figure 4-6 Example of device-specific configuration screen

Options

Modify Algorithm Parameters

Menu Options | Parameters modify
Hot-key F3

This function allows a user to modify the programming parameters of the chips being programmed. With the programming parameters for the selected chip appearing on screen, the user activates the "modify algorithm screen" and changes the parameters by moving the cursor to the corresponding field and changing the value to the desired value. If a value entered exceeds the allowable limits for a given parameter, a warning will be flashed, together with allowable limits, after the user attempts to confirm the setting by pressing "OK".

Warning: *Only experienced users should use this option, as it can damage the device if it is used incorrectly.*

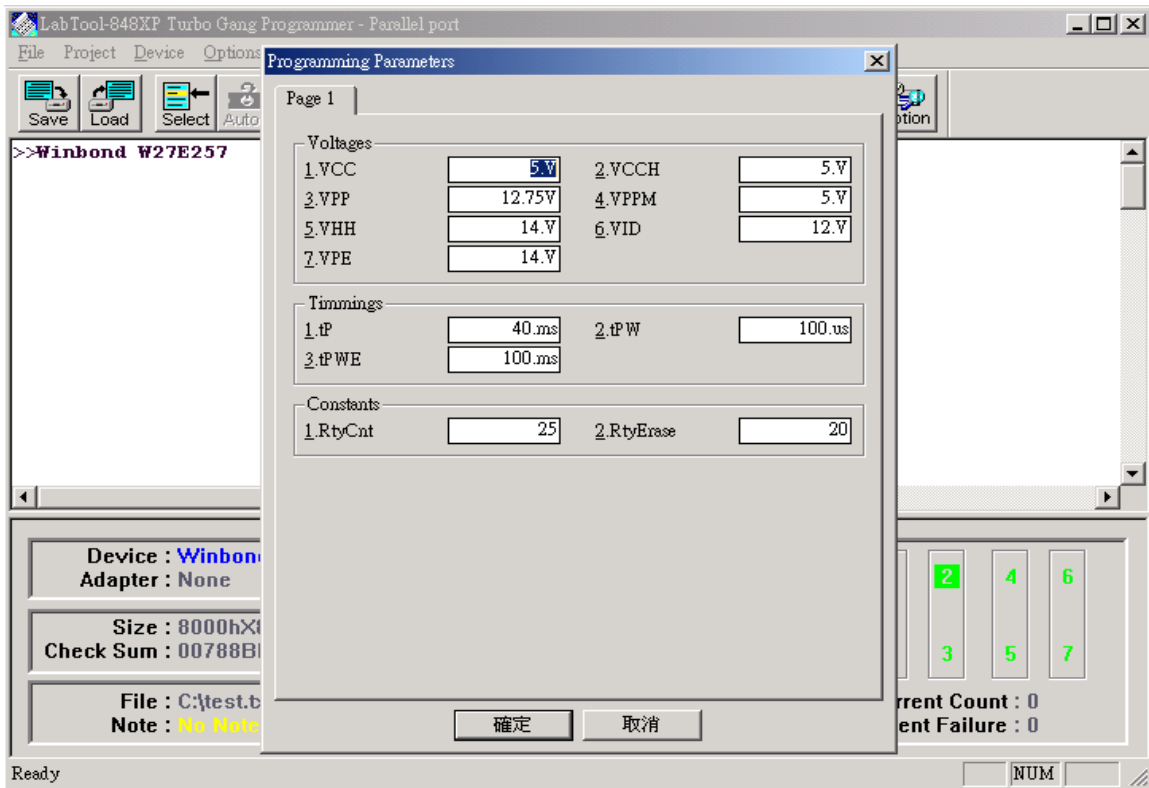


Figure 4-7 Example screen: Modify algorithm parameters

If you want to program a device that is not supported by the GANGSTARPRO-848, do the following:

1. Select a device that uses the same programming algorithm as the device in question.
2. Modify the device programming parameters.
3. Program the device.

As the programming parameters are for temporary use only, they cannot be saved. After you select a new device or exit the GANGSTARPRO-848 software the original parameters will automatically be restored.

Device operation options

Menu **Options | Operation options**
Hot-key **F4**

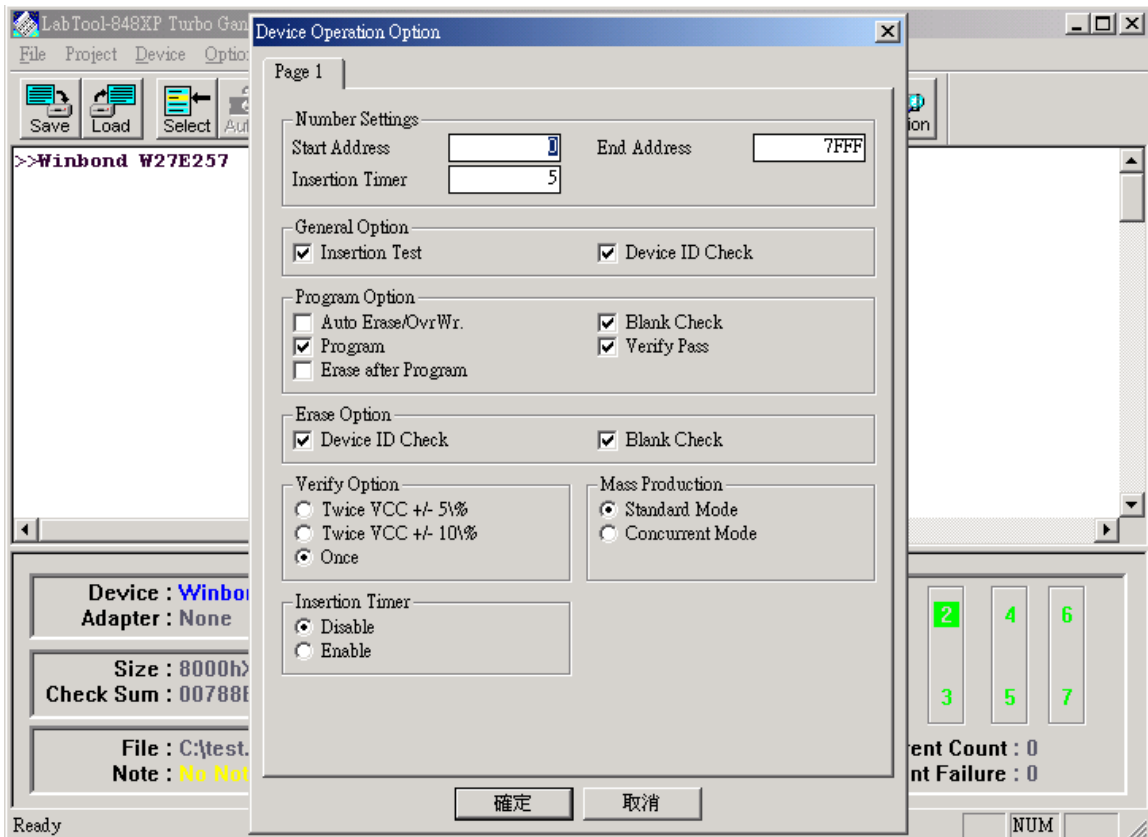


Figure 4-8 Example screen: Device-specific operation options

The following options can be set:

Start address, End address

This is the start and the end address of the edit buffer. If you want to program a certain area of a device, you can change the start and end addresses accordingly.

This option is only displayed when the device can be programmed in this way.

When the end address is calculated, it divides the buffer size by (device-bits/8-bits). A 16 bit device, of which the buffer size is 80 (Hex), will therefore have an end address of 3F.

When selecting a start or an end-address, you should align the buffer on the right boundary: single-word for 8-bit devices, double-word for 16-bit devices, etc.

Erase start/end address

This option is for electronically erasable Flash chips only. The default setting of this option will erase the entire chip. However, a user can specify ranges of blocks to be erased; data in the remaining blocks will be unchanged. A user should reference the chip data book or configuration menu when setting the ranges of blocks to be erased.

Insertion Timer Enable/Disable

When the insertion timer is disabled and an error is detected during insertion testing, the GANGSTARPRO-848 waits for the operator to either correct the error condition or to acknowledge and bypass the error.

When the insertion timer is enabled, the GANGSTARPRO-848 waits a specified period for the operator to correct the condition, and if no correction is made, shuts down the socket(s) reporting the error and completes programming of the remaining sockets.

Insertion Timer

This option sets the time-out interval for the insertion test. When the insertion timer is enabled and an insertion error is detected, if the operator fails to correct the problem within the interval set, the GANGSTARPRO-848 will automatically shutdown the error socket and complete programming of the remaining sockets. If multiple errors exist in different sockets and the operator corrects one of the sockets, the timer resets and waits the specified time for each succeeding error. Time-out intervals can be set from 1 to 999 seconds. The default value is 5 seconds.

Insertion Test

This option performs the device-insertion check of the chips in the sockets. The insertion check includes poor pin contact, pin count mismatch (the pin count of the chip designated in the software does not match the pin count of the actual chip in the socket), device in wrong position, device upside-down, short-circuit between pins, and chip damage. Results are displayed at each socket's LED.

Device ID Check

This option performs a device signature and manufacturer match test. With the chip selected and plugged into a socket, GANGSTARPRO-848 checks the device ID and displays the results of each check on the LED display.

Verify Passes

Checking this option will instruct the GANGSTARPRO-848 to perform device verification with the buffer data when programming is complete. When verify passes is enabled, one of the three verify options (as described below) must be set.

Verifying Options

The following three options are available for verification of data retention following programming: verify twice with 5% V_{CC} , verify twice with 10% V_{CC} , and verify once with V_{CC} . These options will only be enabled if the 'Verify passes' option (see above) is enabled.

(•) Twice $V_{CC} \pm 5\%$

When this option is selected, the GANGSTARPRO-848 will do two verify passes on the device: one using $V_{CC} + 5\%$, the other $V_{CC} - 5\%$.

Example:

IF V_{CC} is 5.0 V, the GANGSTARPRO-848 will do one verify pass using a V_{CC} of 4.75 V, and one using a V_{CC} of 5.25 V.

(•) Twice $V_{CC} \pm 10\%$

When this option is selected, the GANGSTARPRO-848 will do two verify passes on the device: one using $V_{CC} + 10\%$, the other $V_{CC} - 10\%$.

Module options

Menu **Options | Module options**
Hot-key **F5**

This option is used to select the master socket location (default slot0), and enable/disable the socket.

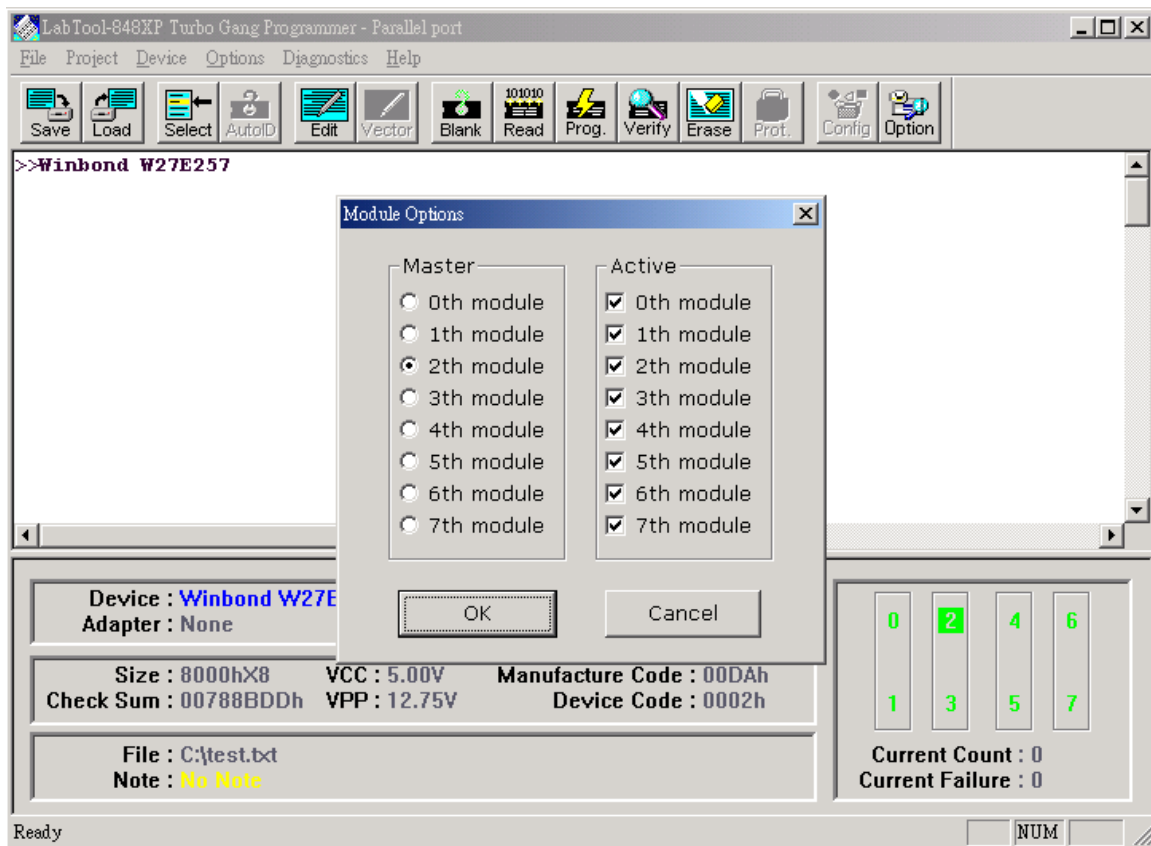


Figure 4-9 Master socket selection, active socket selection

Statistic Commands

GANGSTARPRO-848 can keep track of chip programming failures. The lower right-hand corner of the Run Time Viewer screen contains two entries: Current Quantity and Total Fail. These quantities automatically increment for every chip GANGSTARPRO-848 attempts to program, and for every programming failure. Failures counted include chips that fail device ID check, blank check, verify pass, protect, and unprotect. The user can input a target quantity of chips to be programmed in a production run, and an allowable number of failures. An alarm feature can be set so that when the

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CHAPTER

Using Adapters

Adapter requirements

The GANGSTARPRO-848 supports all 48-pin TSOP, 44-pin PSOP, 40-pin TSOP, and 32-pin TSOP pin packages. You will need to order an adapter for non-DIL chip packages. You can order the following available adapters to fit your needs. Other adapters will become available after release of new chips.

PLCC3232-11	32-pin PLCC adapter for EPROM/Flash, 1 MB and above
PLCC3228-11	32-pin PLCC adapter for EPROM/Flash, below 512 KB
PLCC4440-01	44-pin PLCC adapter for 44-pin PLCC package 16-bit EPROM
PLCC4440-02	44-pin PLCC adapter for 44-pin PLCC package 87C5X processor
SDP-UNIV-28TS	28-pin universal TSOP (8 mm x 14 mm) adapter.
SDP-UNIV-32TS	32-pin universal TSOP (8 mm x 20 mm) adapter.
SDP-UNIV-40TS	40-pin universal TSOP (10 mm x 20 mm) adapter.
SDP-UNIV-40TS/W	40-pin universal TSOP (10 mm x 14 mm) adapter.
SDP-UNIV-44PS	44-pin universal PSOP adapter.
SDP-UNIV-48TS	48-pin universal TSOP (12 mm x 20 mm) adapter.
SDP-UNIV-48TS/W	48-pin universal TSOP (12 mm x 14 mm) adapter.
SDP-UNIV-48TSS	48-pin universal TSSOP adapter (10 mm x 14 mm) 0.4 mm pitch.
SDP-F400-56TS	56-pin TSOP adapter for Intel/Sharp 28F4/200 Flash.
SDP-F016-56TS	56-pin TSOP adapter for Intel/Sharp 28F016/32 Flash.
SDP-F320-56SS	56-pin SSOP adapter for Intel/Sharp Flash chips.

A

APPENDIX

Error Messages

Error Messages

This function is not supported in demo mode !

When the GANGSTARPRO-848 is not activated, some functions may be inhibited.

Illegal range of erase address setting ! Retry again !

The address range for an erase command must match the sector edge.

Time-Out error !

The GANGSTARPRO-848 does not respond when the system times out.

Cannot open file : XXXXXXXX !

The file was not found or a disk error occurred.

Device ID Code unmatched !

The current chip's ID will be displayed.

File write error !

Illegal file name or disk error.

The GANGSTARPRO-848 detected an error when writing a file to disk.

Check that there is enough space on the disk to hold the file. Also check that the disk is not write-protected. This might happen on a network if you are a user that does not have rights to the directory you want to save the file to. Use another directory or disk.

File read incomplete !

The user break .file format was unmatched or a disk error occurred during file reading.

GANGSTARPRO-848 not found, Do you want to retry ?

The GANGSTARPRO-848 software does not detect the GANGSTARPRO-848 on one of the parallel ports. Press enter to retry. Press Esc to enter demo mode.

Make sure the power on the GANGSTARPRO-848 is on. Also check the parallel connection between the PC and the GANGSTARPRO-848. If the GANGSTARPRO-848 shares the parallel port with another device, remove the other device or move the GANGSTARPRO-848 to its own port.

GANGSTARPRO-848 power off or disconnected from PC !

The GANGSTARPRO-848 software does not detect the GANGSTARPRO-848 on one of the parallel ports.

Make sure the power on the GANGSTARPRO-848 is on. Also check the parallel connection between the PC and the GANGSTARPRO-848 and between the PC and the printer. If the GANGSTARPRO-848 shares the parallel port with another device, remove the other device or move the GANGSTARPRO-848 to its own port.

Other Error Messages

The following list of error messages uses the code XXXX, where XXXX can be Read; Verify/ Blank Check; Program; Erase; or Memory Protect. Aborted has the same meaning as user break.

XXXX Aborted !

XXXXX error found !

XXXX error on Module X Address XXXXh !