

NuProg-F8

eMMC and UFS

Gang Programmer and Duplicator

User Manual

Version 2.0



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I. Introduction

This NuProg-F8 user manual illustrates its hardware specifications, instructions, and quick software installation guide. NuProg-F8 is a combination of programmer and duplicator, which is dedicated to support high capacity memory, like UFS and eMMC. For UFS, it provides the basic LUN/RPMB read and write, Descriptors, Attributes, and the Flag settings. As for eMMC, it supports User Area, Boot1/2 and RPMB read and write, also provides ExtCsd settings, as well as GPP1~4 divisions and Enhance setting. With USB3.0 high speed transmission, Nuprog-F8 is the finest programmer and duplicator for research and development.

For more information, please visit our website. www.dediprogram.com/download

II. Product Information

- **High Speed Programming**

With high speed processor, programming speed will greatly increase.

UFS Write speeds: 80~95MB/s; **Read speeds:** 130~150MB/s (Depends on the computer and IC performance).

Time reference: It will only take 14 seconds to write a 1GB file into a Toshiba UFS IC.

- **Support UFS and eMMC/eMCP Settings and Programs**

- **UFS**

1. Support Descriptors, Attributes, and Flags settings
2. Support LUN configured and advance settings
3. RPMB

- **eMMC**

1. Support User Area, Boot1/2 Partition, and Extend CSD
2. Support RPMB, GPP1~4 and Enhanced mode

- **Support all IC package**

Support standard package of UFS and EMMC (BGA153 (11.5x13mm)) or special package of UMCP and eMCP.

- **Regular Software Update**

- **Support USB 2.0 and USB 3.0 (Use Power adapter)**

III. System Requirement

CPU:	Intel i5 or Above
OS:	Windows 7/Windows 8/Windows 8.1/ Windows 10
USB Port:	USB 2.0 and USB 3.0
Free Dish Space:	At least double of the programming memory.
CD ROM:	It is necessary for installing the software.

*Since UFS and eMMC have mass volumes, please reserve enough space for buffering.

*Computer performance will affect the read and write of UFS, please choose a computer that has higher CPU and better performance.

IV. Product Descriptions

4.1 Exterior

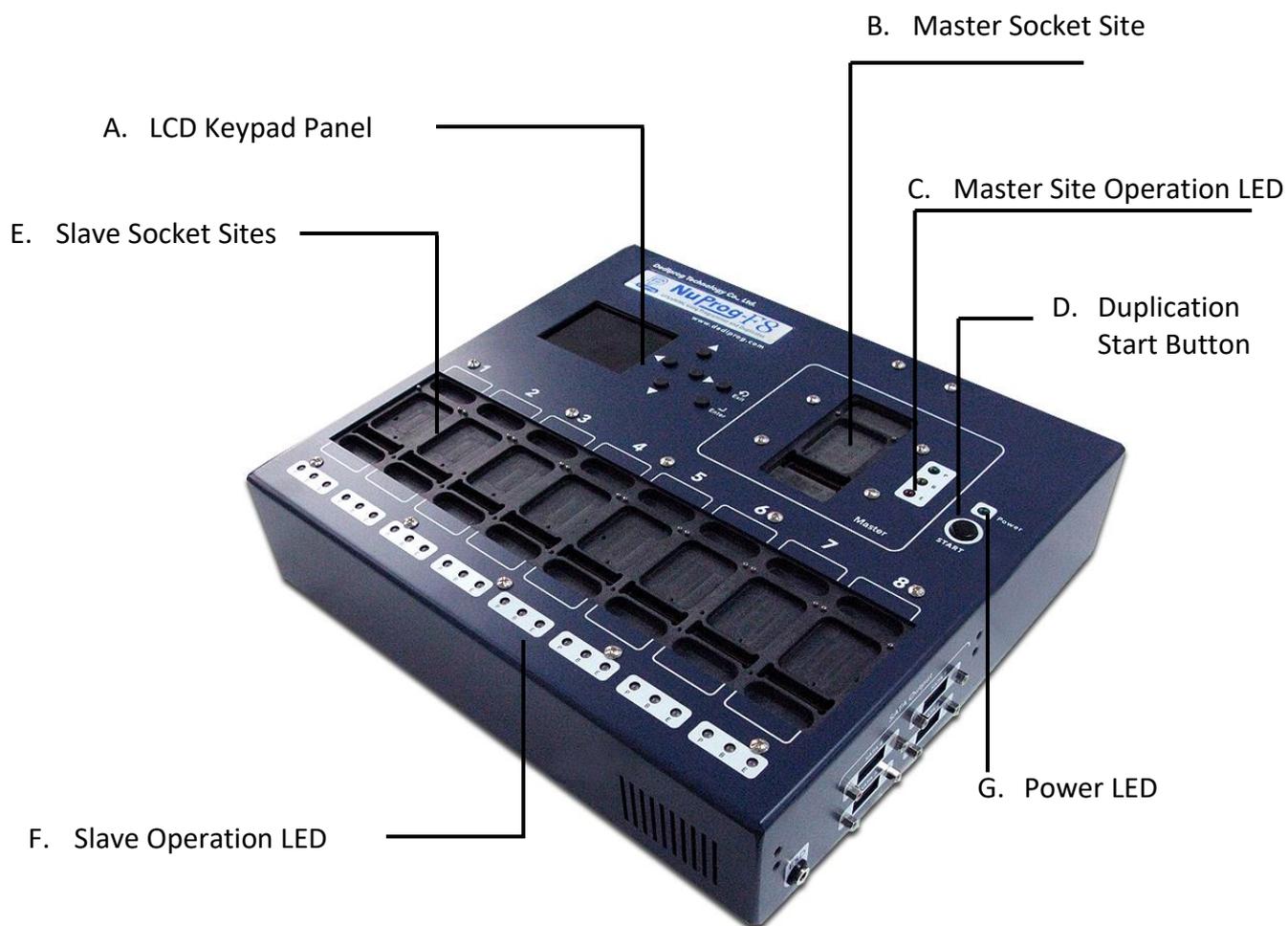


Fig. 4-1

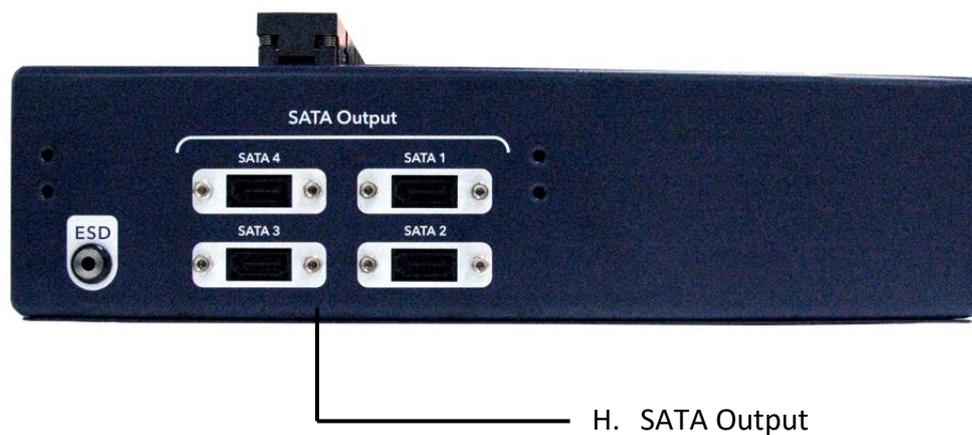


Fig. 4-2

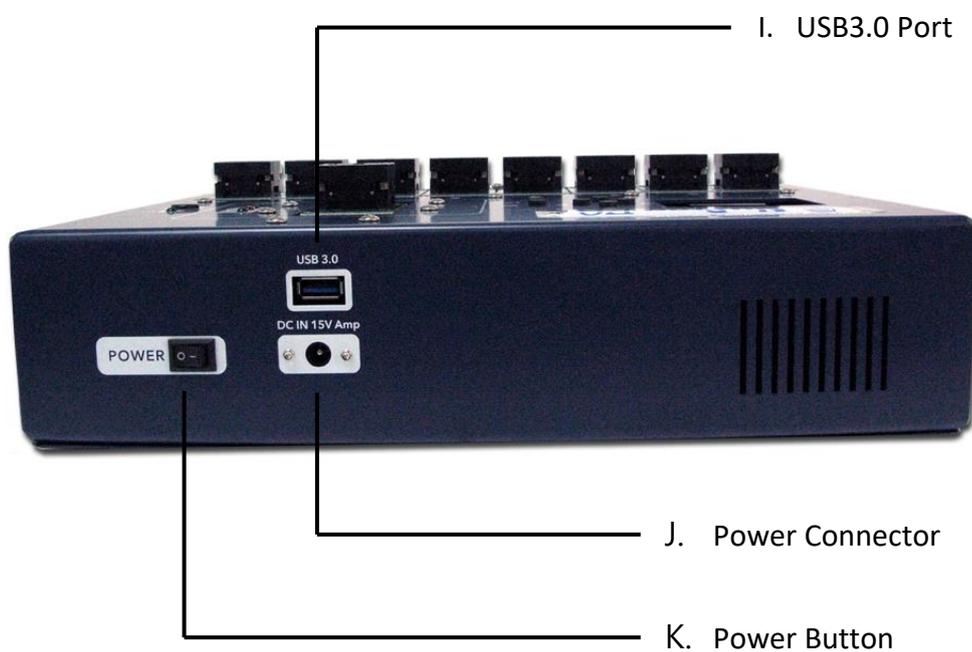


Fig. 4-3

A. LCD Keypad Panel

For search and manipulate in standalone mode.

B. Master Socket Site

It is the socket site for the master IC chip, which allows programming the master chip directly.

C. Master Site Operation LED

Red (Error): Error message; programming failed.

Yellow (Busy): In the progress of programming.

Green (Pass): Program succeeds.

D. Duplication Start Button (For Stand Alone only)

Start Button for duplication.

E. Slave Socket Sites

For duplicate the slave IC chips.

F. Slave Operation LED

The status operation lights for duplication.

G. Power LED

LED will turn on when NuProg-F8 is powered on.

H. SATA Output

For daisy chain NuProg-F8 (Please contact DediProg for further information).

I. USB3.0 Port

For connect the programmer with the computer.

J. Power Button**K. Power Connector**

Please use the 15V/4A power supply that DediProg provided.

4.2 Socket Adaptor Installation

Insert an IC into a socket adaptor, and then attach to the socket site.



Fig. 4-4

V. Dediware Quick Installation

The software is provided with the purchase of NuProg-F8. The latest version is available on our website. www.dediprogram.com

5.1 Software Installation

5.1.1 Run Dediware

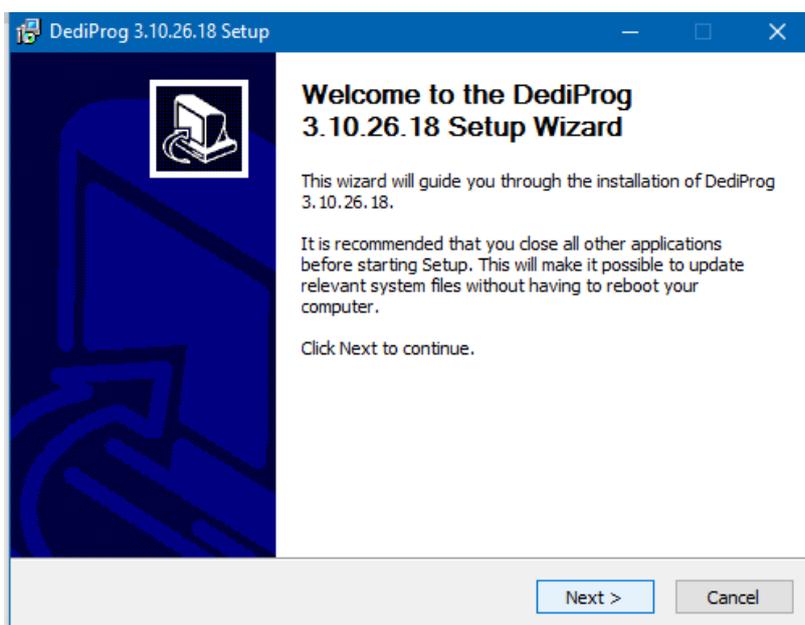


Fig. 5-1

5.1.2 When it is the first time to install NuProg-F8 software, please install the USB Driver. Otherwise, the computer will not be able to recognize the programmer.

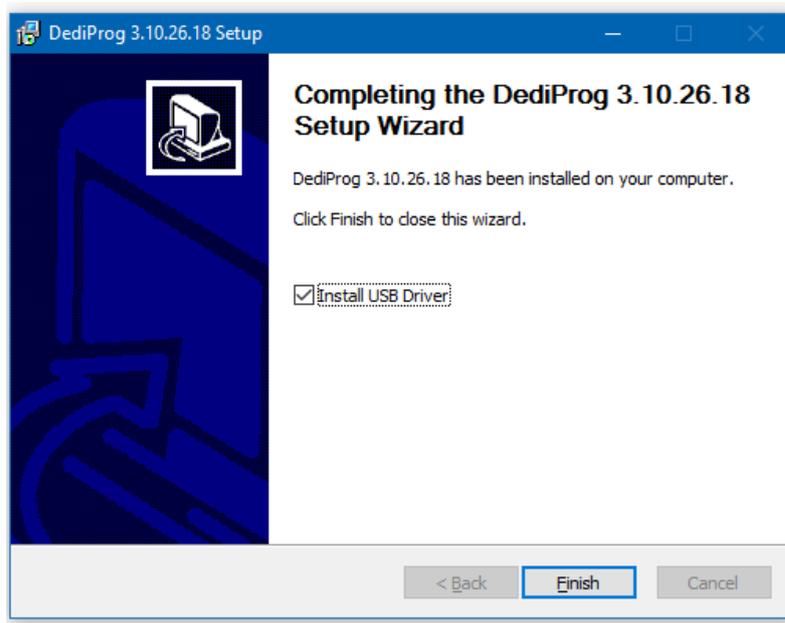


Fig. 5-2

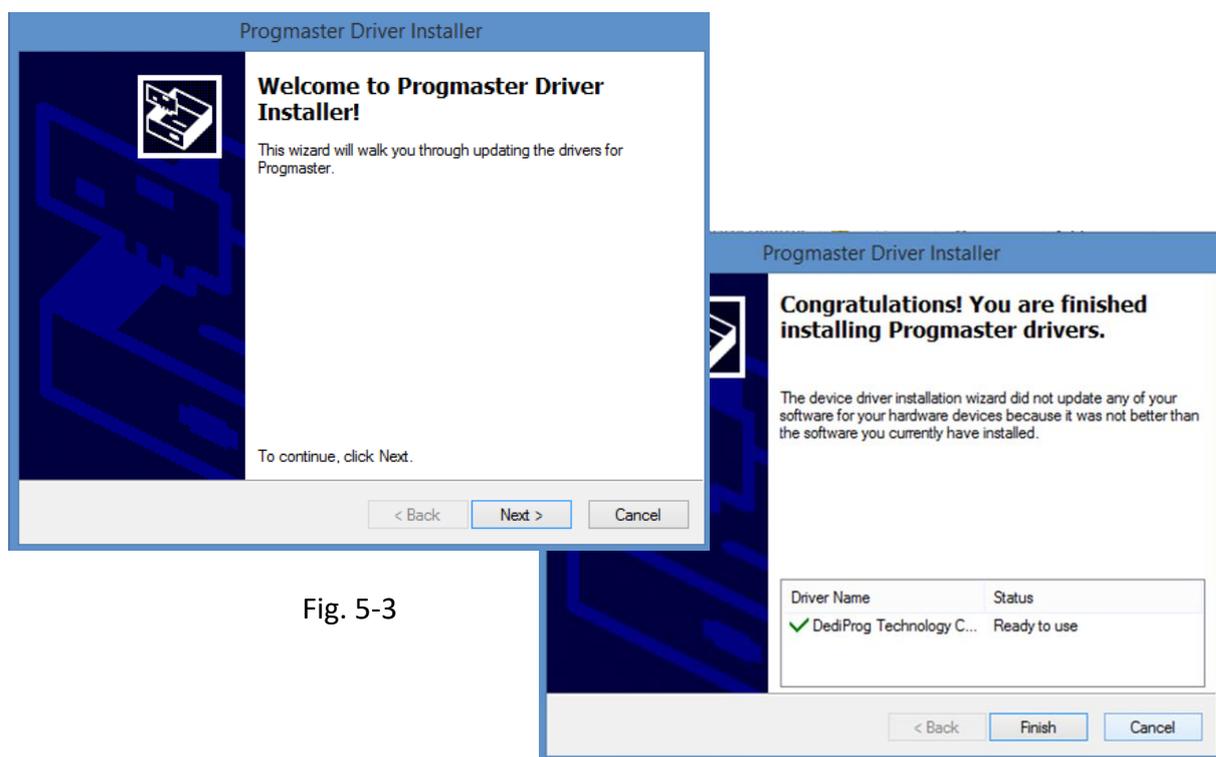


Fig. 5-3

5.1.3 After installation, **Dediware** and **NuProg** icons will appear on the desktop. The Dediware icon is for StarProg and ProgMaster series programmer; NuProg is for NuProg-E programmer.

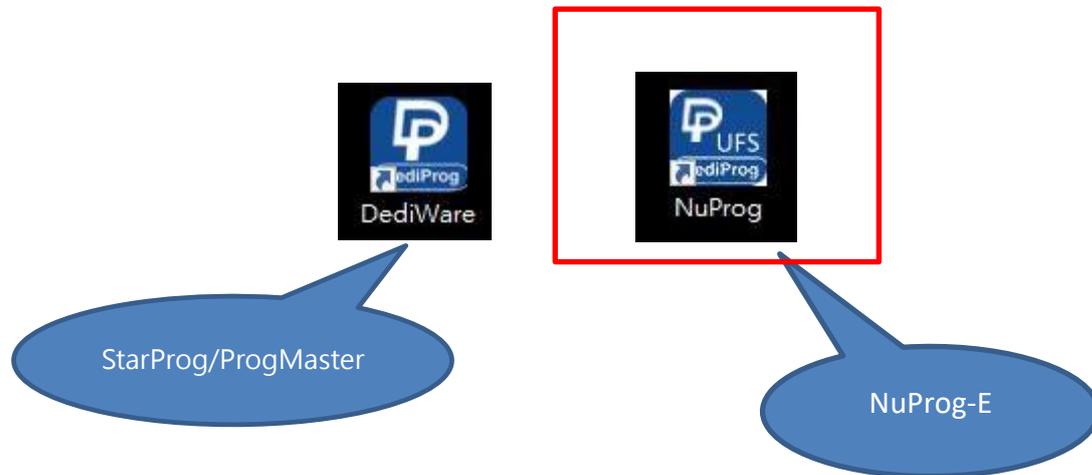


Fig. 5-4

There is another icon called DediWare_CLI; it is the Command Line software for StarProg Series programmers, and it does not support NuProg series.



Fig. 5-5

5.2 Install NuProg-F8 Programmer

5.2.1 Place an IC into a socket adaptor and attach it to the socket site.

5.2.2 Connect NuProg-F8 to the computer (USB 3.0 is recommended).

5.2.3 Once start running the Dediware, it will detect programmer automatically and available for programming.

5.3 NuProg Installation Guide

This section will only illustrate the **Copy Function**. More information about the **Engineering mode**, please refer to the “NuProg-E User Manual”.

5.3.1 Double click NuProg to start Dediware.



Fig. 5-6

5.3.2 Software Introduction

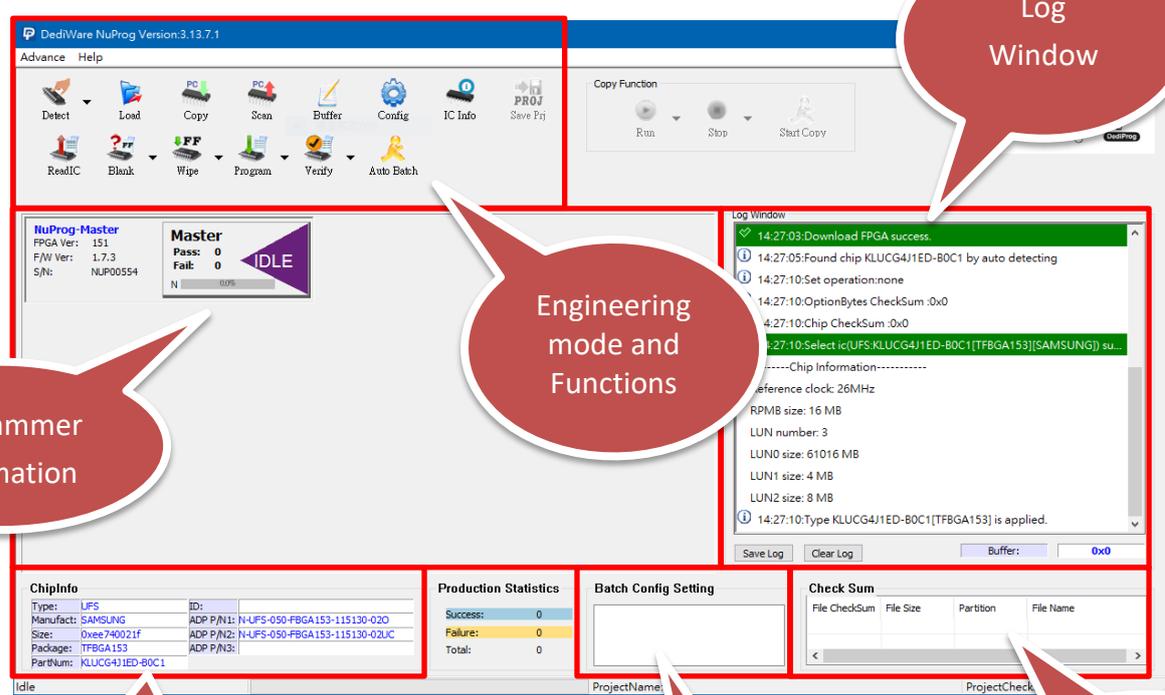


Fig. 5-7

- **Engineering mode and Functions:** Menu includes general functions, like languages selection, buffer settings, and firmware updates...etc. And, the function icons are for the Engineering mode to create the master IC chip.
- **Programmer Information:** It shows whether the programmer and the Dediware are connected. NuProg-F8 has master device and slave devices, but when the NuProg-F8 is connected to the PC (USB mode), it can only operate the Master Chip, since the **Copy function only works in Standalone mode**. As shown as Fig 5-8, the Firmware version of the master is 1.7.4; FPGA version is 151. The Firmware version of the slave is 2.2.26; FPGA version is 153.

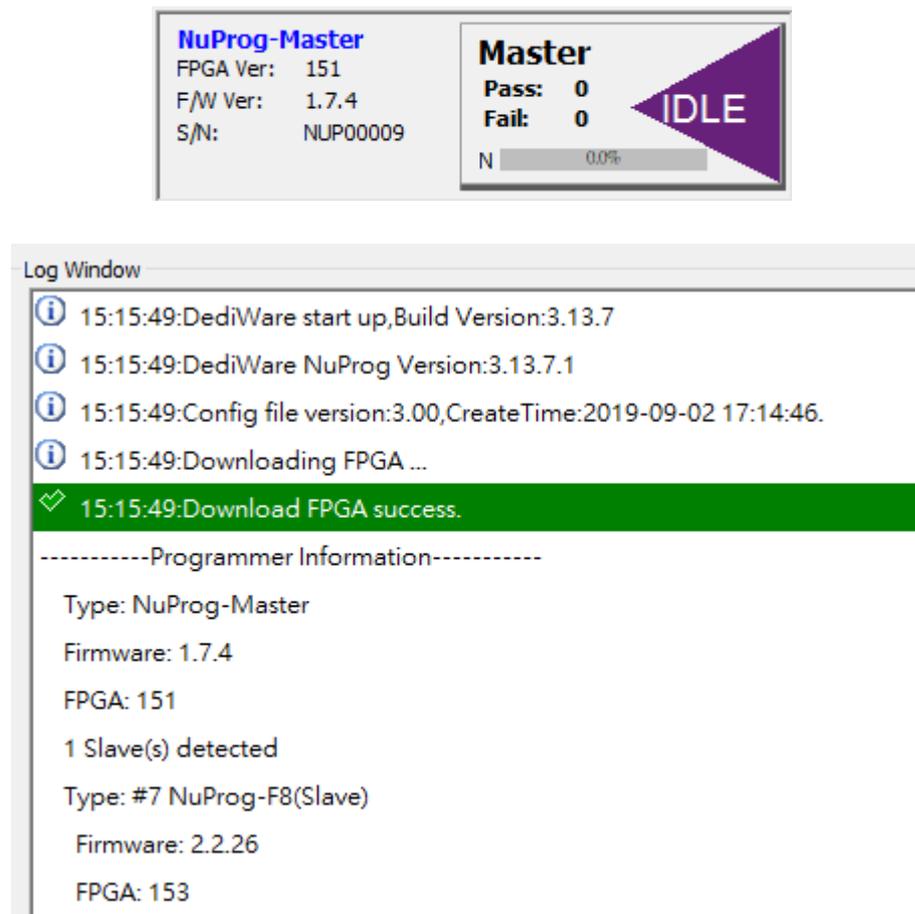


Fig. 5-8

IC Information: Shows the IC manufacturer, model name, memory size, and the number of the corresponding socket adaptor

Batch Config Setting: It shows the settings of the copy function

Checksum Data: It shows the project data that were loaded in the Engineering mode.

Log Window: It displays and records all the actions and the results.

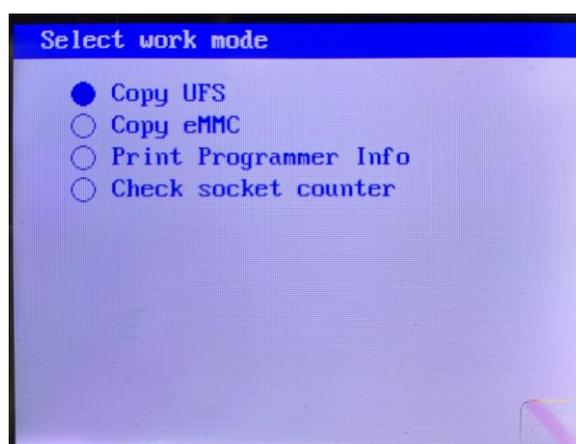
5.4 Stand Alone Mode

NuProg-F8 uses standalone mode to achieve Copy functions; standalone mode means it can be used without connecting to a computer. Please follow the below steps:

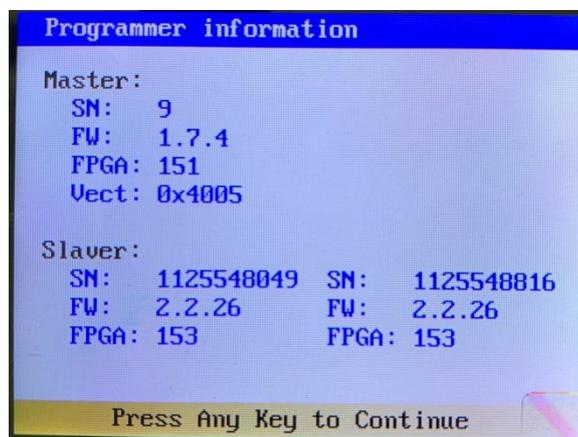
Step 1. After turn on NuProg-F8, the main screen will show the Firmware version and the FPGA version of the master device. When the NuProg Software is not connected to the programmer, user can use the LCD keypad to enter the standalone mode on NuProg-F8.



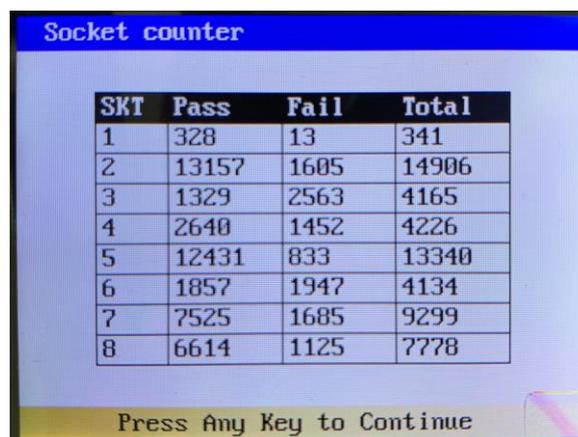
Step 2. Choose UFS or eMMC according to user's need.



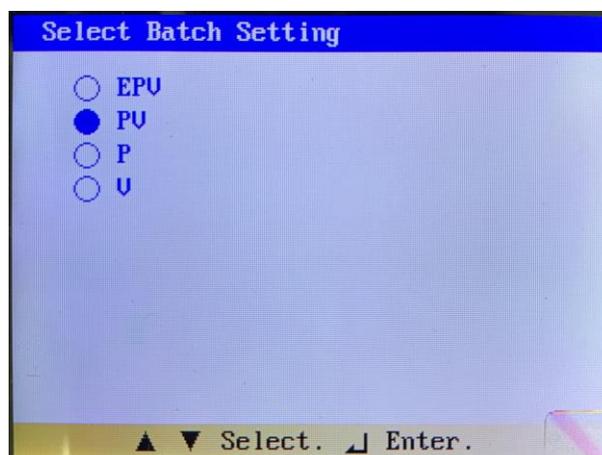
In the Print Programmer Info, the LCD will display Programmer FW/FPGA/SN...etc.



In the Check socket counter, the LCD will display each connected socket counter.

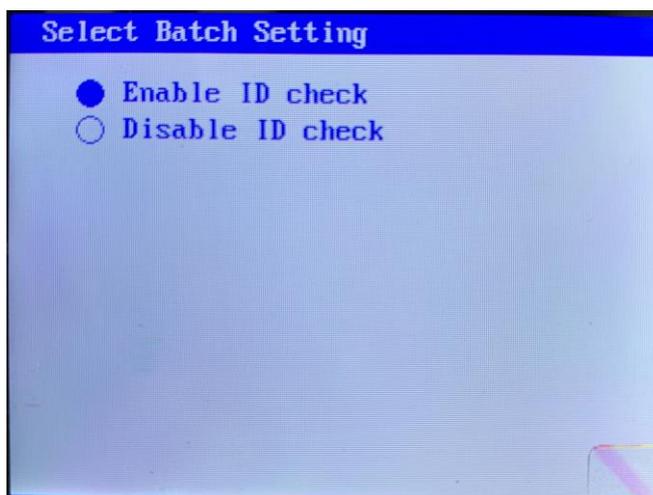


Step 3. After select Copy UFS or Copy eMMC, please set up the Batch Setting according to user's need, press enter to continue, and NuProg-F8 will detect the master IC.

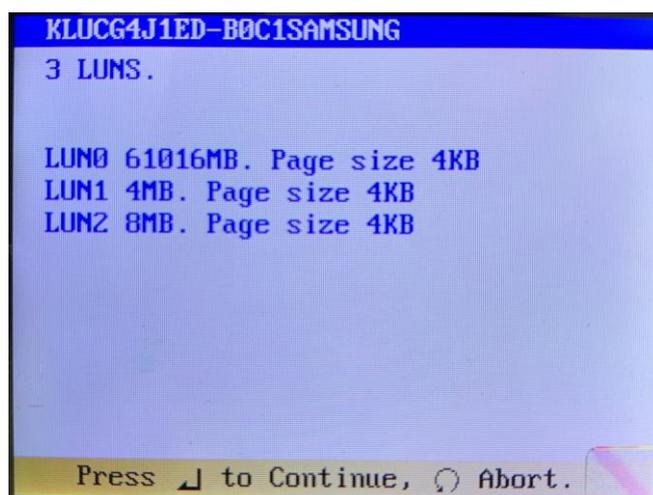


Step 4. Set ID check enable or not. Usually it is recommended to Enable ID check. This is designed for different chips copying, however, please note that it still has some limitations.

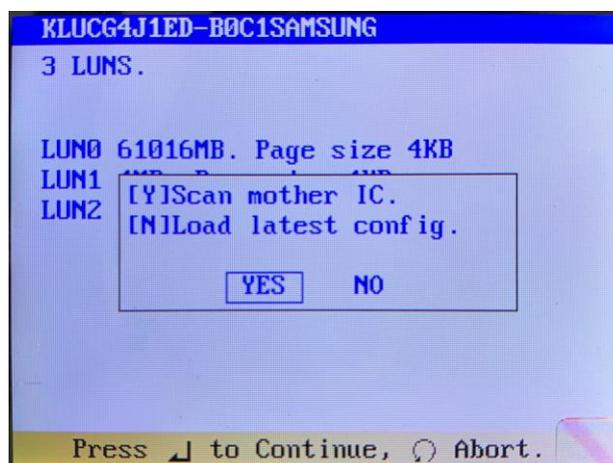
- Master chip size need to be smaller than the Copied chips.
- Do not mix the chip types, EX: eMMC chips copy to UFS chips.
- eMMC extCSD / UFS attributes, and flags have some OTP values, if the copied chips has already been written those bit (byte), but the master IC has not, then it might occur copy failure.



Step 5. Click enter to the next page, NuProg-F8 will initialize the master chip, after finishing the process, the result will appear on the LCD. It shows details information of the master IC; including the part number, the LUNs, and the partition size.



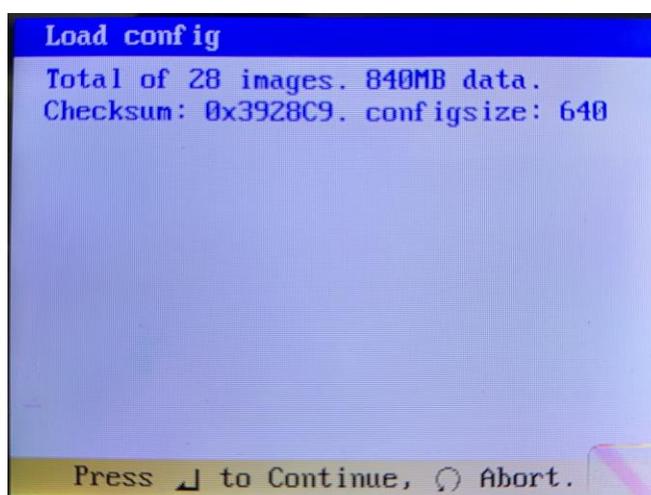
Step 6. Press enter and it will give the choices of loading the Config file (N) or re-scanning the master IC (Y).



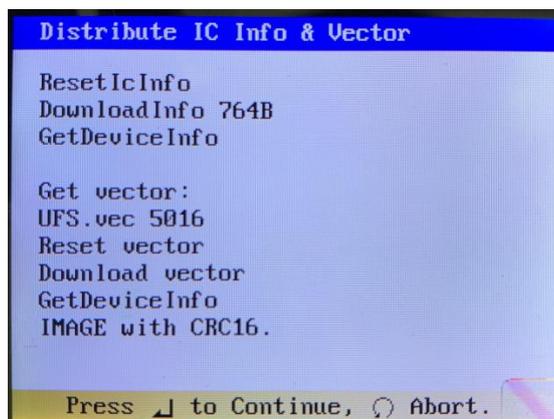
Step 6-1. If choosing **No** at Step 6, it will show **Image Config**, which will be saved automatically after scanning the master IC. This selection usually will be used in the below situations:

- The users have a large count of IC devices need to copy, and need to shut down the programmer every day.
- The users want to Verify operation.

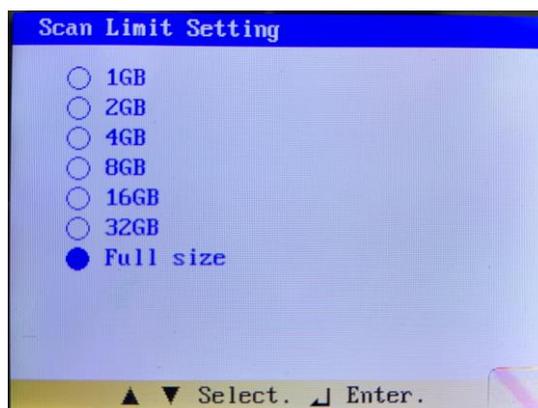
If users do not want to re-scan the master IC, they can select [**No**] to reduce scanning time, but please note that NuProg-F8 only saves one default config, so if re-scan the master IC, F8 will create another new config file and also cover the old one.



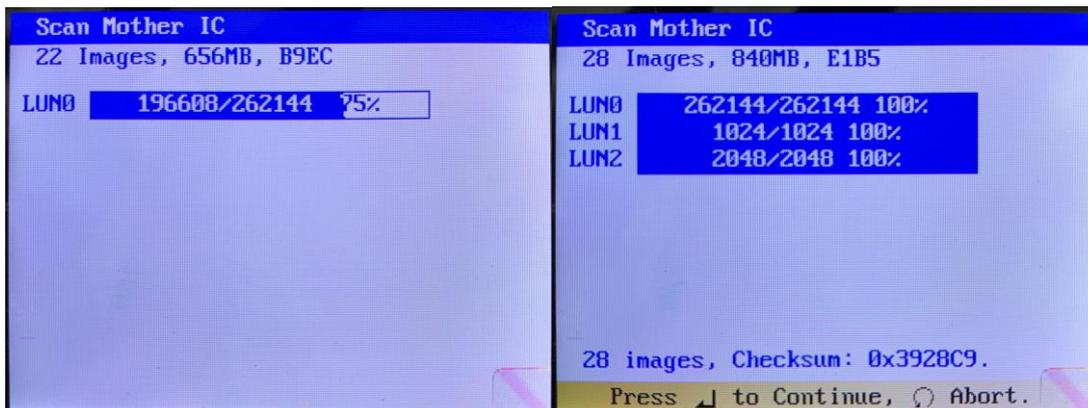
After reviewing the master IC info, press Enter to start initializing and the copy process.



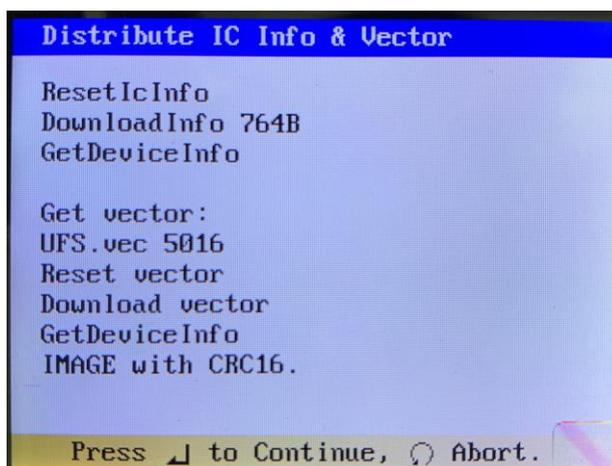
Step 6-2-1. If choosing **Yes** at Step 6, then it will ask for the size range for scan limit setting.



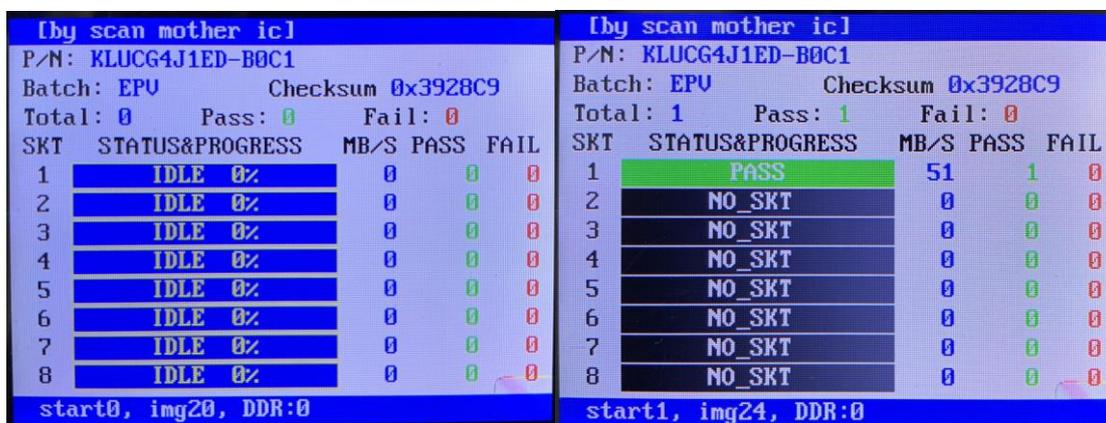
Step 6-2-2. Start scanning the master IC and it will display its result.



Step 6-2-3. Next, after reviewing the master IC info, press Enter to start initializing and the copy process. Please also remember that F8 has already saved a new config. Therefore, users can load it next time when they want to copy the same master IC.



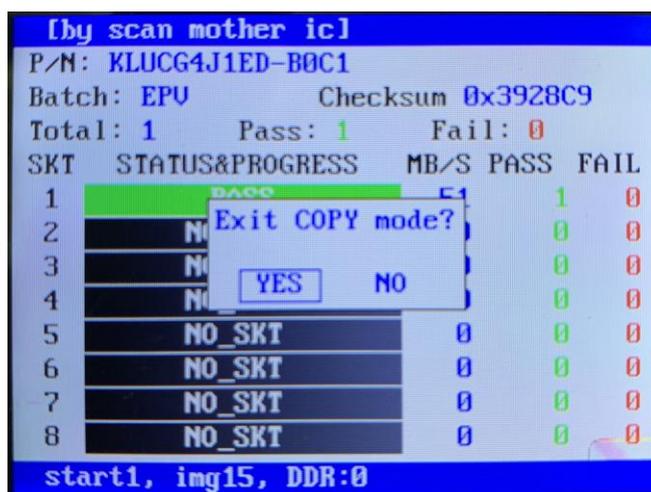
Step 7. Start copying.



There are a lot of information on this page, please see the following descriptions.

- **P/N:** IC master's IC part number.
- **Batch:** programming operations.
- **Checksum:** chip checksum.
- **Total:** total counter in this production process.
- **Pass:** total pass and each site pass counter in this production process.
- **Fail:** total failure and each site failed counter in this production process.
- **SKT:** socket site numbers.
- **STATUS&PROGRESS:** display each site's programming status.
- **MB/s:** display each site's programming speed.
- **start xx/img xx/ DDR:** only display standalone mode working status, users can usually ignore it.

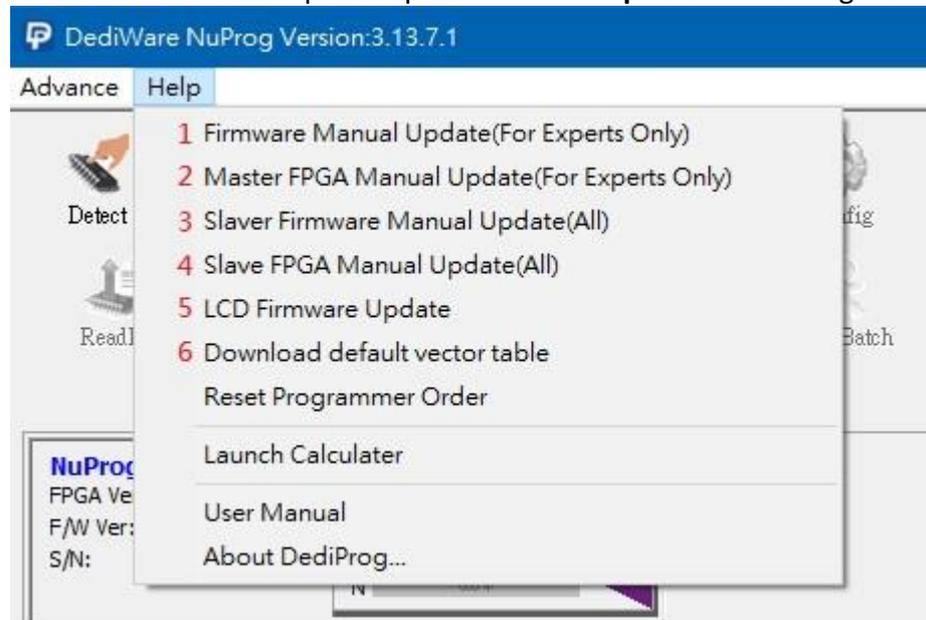
Step 8. In order to exit the copy process after production, click the Exit button on the LCD Keypad and it will ask if users would like to exit the copy mode.



VI. Trouble Shooting and Other Questions

Q1. How to update NuProg-F8's Firmware and FPGA?

Ans. There are some update options under **Help** as the below figure:



- The description of each selection:
 1. Firmware Manual Update (For Experts Only): it is for updating the Master's Firmware.
 2. Master FPGA Manual Update (For Experts Only): it is for updating the Master's FPGA.
 3. Slave Firmware Manual Update (All): it is for updating the Slave's Firmware.
 4. Slave FPGA Manual Update (All): it is for updating the Slave's FPGA.
 5. LCD Firmware Update: it is for updating LCD keypad's firmware.
 6. Download default vector table: Download a new vector file from NuProg software.
- There is a standard procedure to upgrade the firmware, please see the following to upgrade:
 1. Slave FPGA
 2. Master FPGA
 3. Slave Firmware
 4. Master Firmware

Please remember to restart the NuProg-F8 once it has finished updating.

Q2. If eMMC IC is not recognizable on the NuProg-F8 when the user has pressed the Detect button, what to do next?

Ans. First, please check if the IC model is supported. If it is not supported yet, please contact DediProg, so we can add the new IC model name to the software database. If the IC model name is supported, then please check if it is the correct socket, or does it have bad connection or damages.

Q3. If UFS IC is not recognizable on the NuProg-F8 when the user has pressed the Detect button, what to do next?

Ans. First, please check if the IC model is supported. If it is not supported yet, please contact DediProg, so we can add the new IC model name to the software database. If the IC model name is supported, then please check if it is the correct socket, or does it have bad connection or damages.

Q4. What is Image Config?

Ans. In standalone mode, NuProg-F8 will create a file to record data distributed area of the master chip, also record some information like IC part number and other detail info. In order to reduce the time to scan the master IC, users can load this config back if users want to copy the same master IC, please remember this config only can save one at same time, it will refresh and cover the old config once users scan the master IC again.

VII. Revision

Date	Version	Changes
2017/06/25	1.0	Initial.
2019/09/05	2.0	update using process and new pictures.

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