

SU-6908 eMMC Programmer / Duplicator

Software Manual



力浦電子實業股份有限公司
LEAP ELECTRONIC CO.,LTD.

Contents

Chapter 1 Introduction	4
Chapter 2 Usage Consideration	4
Chapter 3 Install and Connect SU-6908	4
Chapter 4 Description of Software Function	4
4-1 File System	5
Simple management of files (Only FAT32).	
4-2 Project Utility	5
Project file upload/download/comparison function.	
4-3 Open Project	5
Open and set the SDD (Solid-State Disk) project file.	
4-4 Update	6
Update SU-6908 System Firmware.	
4-5 Master Timing	7
To set the reading and writing parameter time sequence of Master Socket.	
4-6 Master Ext_CSD	7
To check and set the CID, CSD, and EXT_CSD parameters data of the Master IC.	
4-7 Boot Partition Config	8
To check and set the Boot Partition parameters of the Master IC.	

Contents

4-8 GP Partition Config9
 To Check and set the General Purpose Partition and ENH_
 USR parameters of the Master IC.

4-9 Clone Wizard 9
 To copy the specification of eMMC on Master Socket and
 generate Project file.

Chapter 5 Usage Example11

 5-1 To copy the project file of the master tape11

 5-2 To Produce the master IC by BIN file11

 5-3 To Modify partial data of the eMMC device12

 5-4 The reason why Check Sum are different and Verify Fail
 between master tape IC and Clone copy IC11

Chapter 1 Introduction

This software allow connection of SU-6908 to PC. It can read/write/set the eMMC latch register inside, and read/ write eMMC Boot area and user data area.

Chapter 2 Usage Consideration

Please use the software function carefully. Most important, the user must have professional knowledge of eMMC IC. For example, when setting and partitioning, the user has to know what influences will be caused by changing the parameters. Some setting or partitioning of eMMC can only execute once and can not resume again.

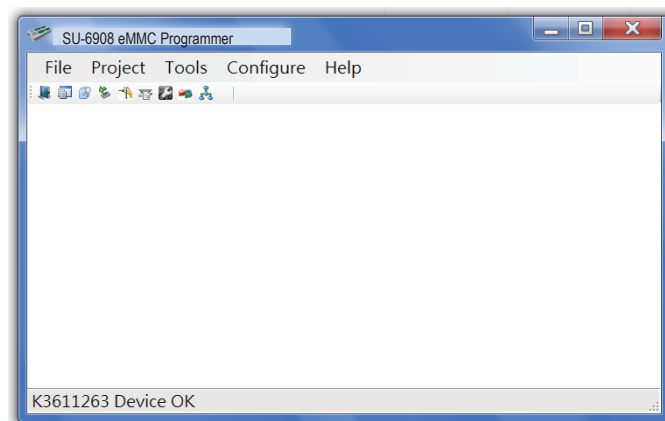
When using SU-6908 or the software to produce Project files or Master tapes, you must program few master tapes first, then weld and assemble it to the product for the full test. You have to make sure the project file and the production of master tape are all correct. Or it may cause many losses when gang producing.

Chapter 3 Install and link to SU-6908

Please install this software and driver first, then connect PC and SU-6908 with USB cable. Turn on the SU-6908, and click [↑ UP] or "4.Link to PC" on the main menu to execute this software.

Chapter 4 Software Function

The operation interface is as below, you can use pull down menu or click ICON to execute the function. It will show "Device OK" on the left bottom if it is connected. If it's not, it will show "Device disconnected".

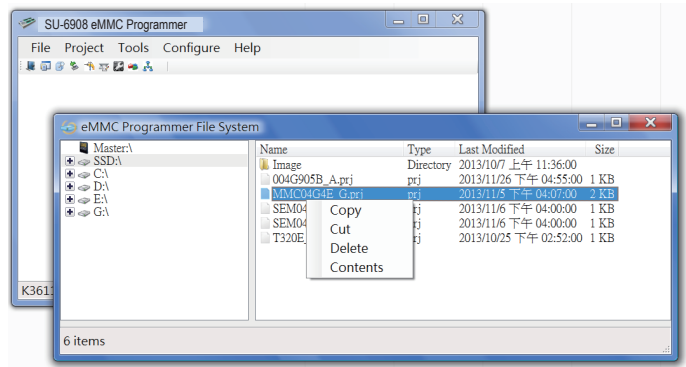


Software Description:



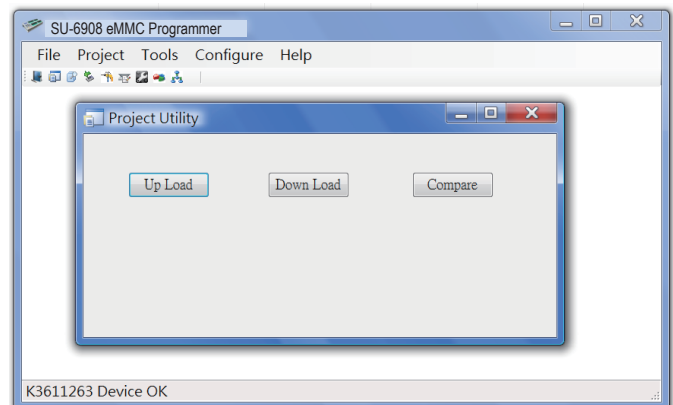
4-1 File System

Provide a simple interface for managing eMMC Programmer File System, which can process the eMMC IC on the Master Socket and the FAT32 file of the SSD. It can not be processed and checked if it is not FAT32 file.



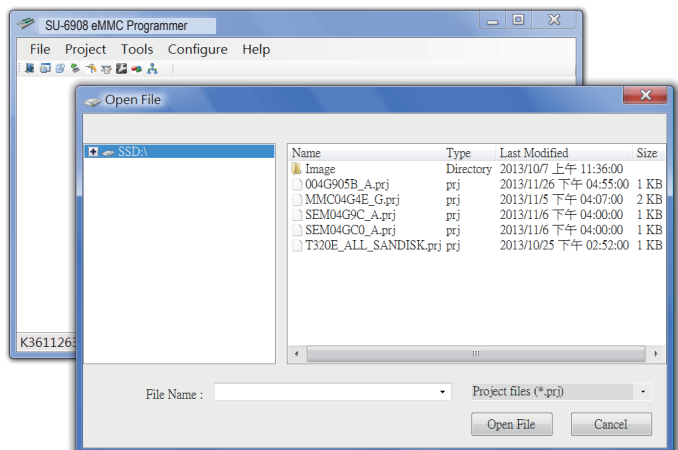
4-2 Project Utility

Project Upload/Download/Comparison function, you could upload the project files on SU-6908 SSD to PC or download the project files from PC to SU-6908 SSD or compare both project files.



4-3 Open Project

To open and set SU-6908 SSD project file on Open File window. Choose project and click "Open file".



Project set up is as below image:

User Area (Including image file)

Boot Partition;

Choose ☐ Boot Area and write in "Boot Partition Config" setting to the eMMC components;

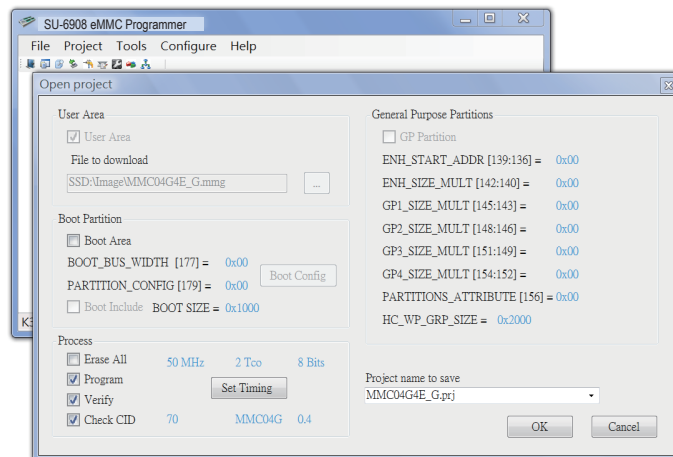
Process: Erase All; Program; Verify; Check CID;

eMMC frequency, Bus width, and TCO parameters setting;

General Purpose Partition;

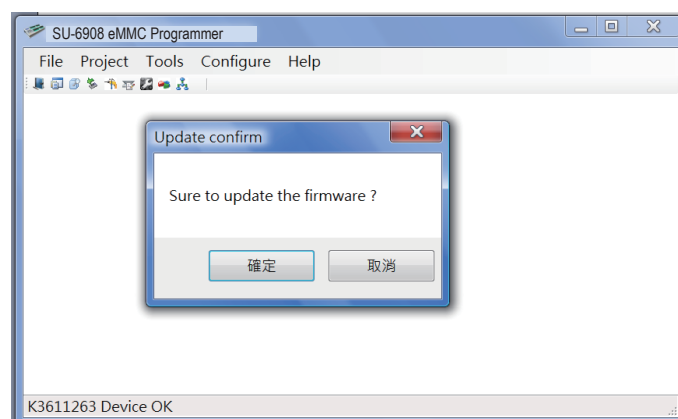
Project save file name:

Click ok while finishing setting and save it to Project file. Click cancel to turn off the window.



4-4 Update

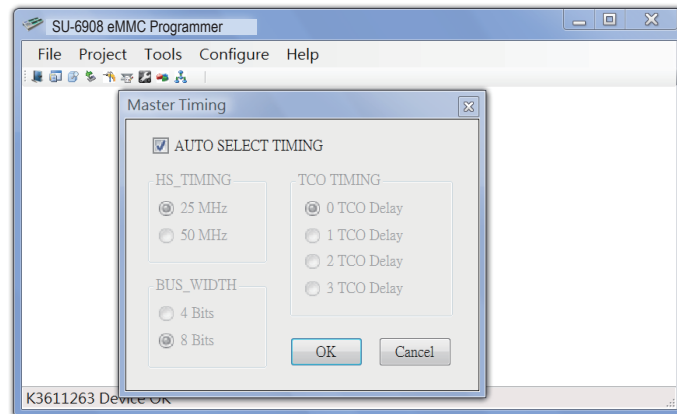
Update SU-6908 System firmware.





4-5 Master Timing

To set the reading and writing of Master Socket. You can click "AUTO SELECT TIMING" and SU-6908 will search the best parameters automatically. It will also login this parameter for optimizing the control of reading the same master next time. You can also turn off Auto function and adjust it manually.

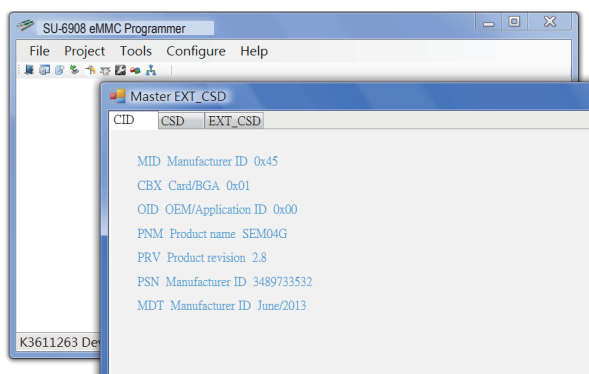


4-6 Master Ext_CSD

To check and set the parameters of CID, CSD, EXT_CSD on the Master Socket.

Note: Please check the eMMC specification, revise and verify it carefully when using this function.

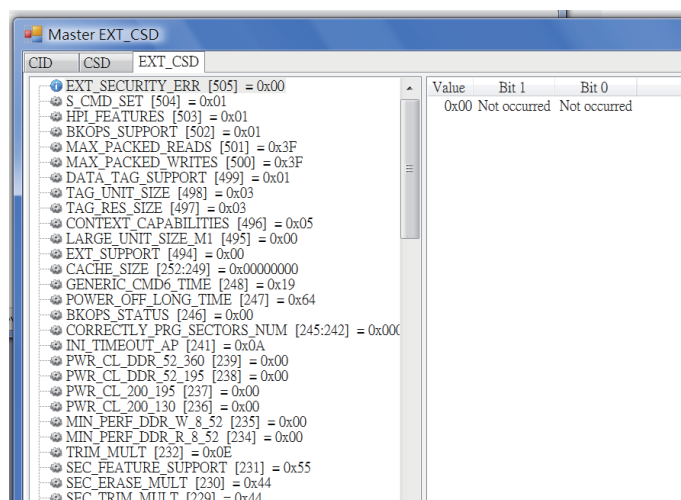
CID Window



CSD Window



EXT_CSD Window. If you want to change the content of the latch register, please choose the latch register from the left field and enter the right field.



4-7 Boot Partition Config

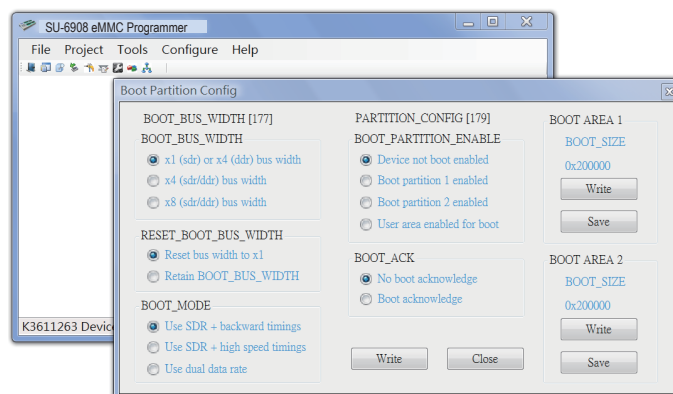
To check and set Boot Partition of master tape on the Master Socket.

EXT_CSD BOOT BUS CONDITION[177] is the setting of latch register, which is on the left side window.

EXT_CSD Partition Config[179] is the setting of latch register, which is on the middle of the window.

After finishing the setting, click "Write" and write it to the Master tape on the Master Socket. The Writer key of "Boot AREA1" and "Boot AREA2" Window is for writing BIN file of PC to Boot Area of the Master tape. "Save" press is for reading the Boot Area of Master tape and save it as BIN file.

Note: Please check the eMMC specification, revise and verify it carefully while operating this function.



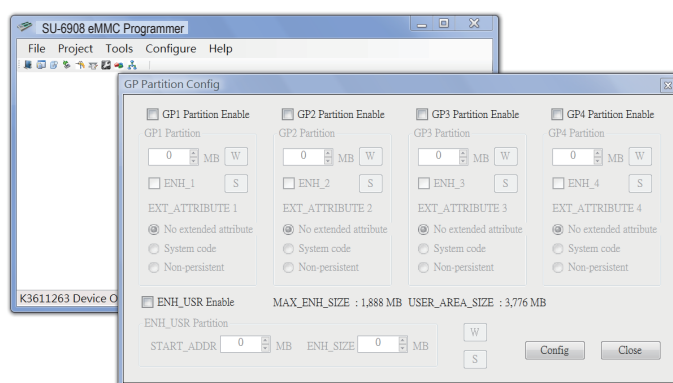


4-8 GP Partition Config

To check and set General Purpose Partition and ENH_USR parameters of the Master tape on Master Socket.

After finishing setting and make sure it is correct, please click the "Config", and the setting will be write to the master tape on the master socket. Modify these parameters will cause unpredictable changes of the data inside Master IC.

Note: Please check the eMMC specification, revise and verify it carefully when using this function. eMMC chip can not be resume after writing Partition setting.



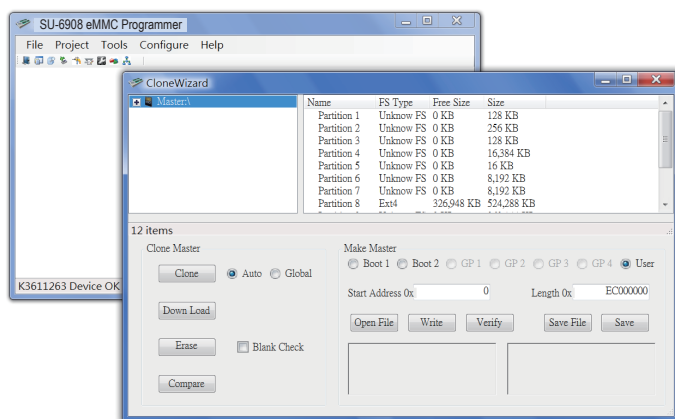
4-9 Clone Wizard

Copy the data from Master tape on the master socket to generate the project file.

Make Master:

Write the BIN files from PC to the areas of Master tape, (such as Bootx, GPx and User...etc.) or read the the saved files.

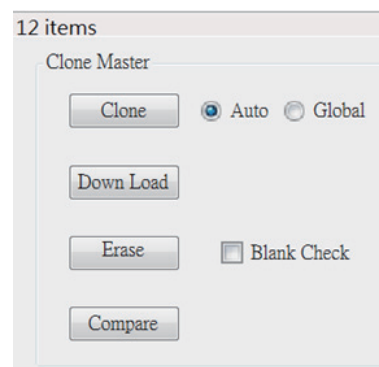
Note: Please check the eMMC specification, revise and verify it carefully when using this function. eMMC chip can not be resume after writing Partition setting.



Clone Master Function:

[Clone] Copy chip data from Master Socket and build Project file.

You can choose "Auto" to scan each Partition sequentially (Scan the whole areas in FAT32, Ext FAT, NTSF format.)If the format is different, please scan it by pure data. The system will save data and mark data areas, then build Project file.

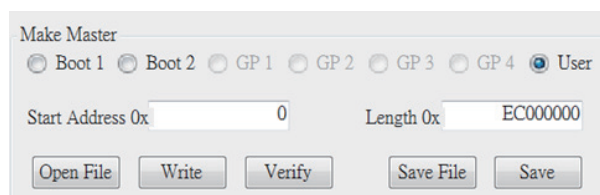


"Global" mode is to scan the whole device by pure data , it includes the deleted files.

[Down Load] Download the project file and write it to the Master tape.

[Erase] Erase the data areas of the IC on the Master Socket, but it won't change the EXT_M_CSD content and can't resume the Partition and some singular parameters.

[Compare] Compare the project file from PC, Master tape and SSD. To see whether they are same or not.



Make Master Function:

[☐ Boot1 ☐ Boot2 ☐ GP1 ☐ GP2 ☐ GP3 ☐ GP4 ☒ User]
Choose the Areas

[Start Address] Choose the address of writing and reading.
It has to be Hexadecimal and integer multiple of 0x200 (512).

[Length] Set the Bytes of writing and reading.
It has to be Hexadecimal and integer multiple of 0x200 (512).

[Open File] Choose the BIN files which will write to the device.

[Write] Select the BIN files to the select areas (Bootx; GPx; User), set address from Start Address field, write the Bytes data from Length field to the Master tape.

[Verify] Verify the chosen BIN file, to check whether it is totally match to the data of the Master tape.

[Save File] Choose the save file (BIN) name after reading the data from the IC.

[Save] Read the Bytes of Length field from (Bootx; GPx; User) and Start Address, then save them to chosen BIN files.

Chapter 5 Usage Example

5-1. Copy the project file of the master tape

1. Place the master tape which is verified, on the Master Socket of SU-6908. If the IC is taken from the board, please insert the solder ball first, to make sure the contact of socket and IC are in good condition.
 2. Use the "2.Make new project" function from main list:
 - a. Choose "Auto Clone" mode, let the system search the best reading and writing parameters automatically and scan each partition sequentially. (Scan the data areas by FAT32, Ext FAT, NTSF formats.) If there are no such formats, please scan it by pure data. The system will save and mark the data area and build the project file on SSD of the programmer.
 - b. Use "Clone From Master" mode, and get the parameters of Master IC from the database. (Or set it manually.) There are two ways to scan -"Auto" and "Global". In "Auto Mode", it will scan each partition sequentially. (Scan the data areas by FAT32, Ext FAT, NTSF formats.) If there are no such formats, please scan it by pure data. The system will save and mark the data area and build the project file on SSD of the programmer.
- "Global Mode"
- In "Global" Mode, it scan the whole device by pure data, which includes the files that are deleted.
3. Use this Project file and program more than one Master tapes.
 4. Please weld the Master tape to the programmer and test it completely to make sure the production of Master tape is correct.
 5. You can also use the software to execute the Clone Master function, which can copy the Project file of Master tape on the PC.

5-2. Produce Master Tape in Bin format

1. Place the target blank IC on the Master Socket.
2. Turn on the software and execute the Master Ext CSD function for setting the related register.
3. Execute the "Boot Partition Config" function for setting the related register.
4. If you need to Partition or ENH_USR, please execute GP Partition Config function for related register.
5. Turn on the "Clone Wizard" function window.

6. Write each BIN file to Boot 1, Boot 2, GPx and USER areas.
7. All the write in action now are for the Master tape on the Master socket of SU-6908. You can Clone Master IC as a project file after writing in all the settings.
8. Please weld the Master tape to the product and test it completely. Make sure the production of the Master tape is correct.
9. If the testing is ok, you can use the project file (Step 7). But if the testing is fail, please delete the project file and make sure the setting and the source of BIN file are correct. Then choose a new target file and start again from step 1. The IC that are fail testing can be used for other purposes after inserting the solder balls. (However, the Partition setting can not be resume.)

5-3. Change partial data of the eMMC

(Only for replacing few Bytes value. If you want to replace the capacity or move it, you still have to modify it from Source Code.)

1. Place the target IC on the Master Socket.
2. Use the software to execute the Clone Wizard function.
3. Choose User (or boot1/2, GPx), use [Save File] & [Save] to read the areas where you want to modify and save it as BIN file.
4. Use HEX Editor software to loading the BIN file. It can find the areas and edit it. However, it can only overwrite and modify the data, it can not increase nor decrease the capacity of the data. Please save the file or save as other file after modifying it.
Note: Start Address / length has to be the integer multiple value of 0x200(512).
5. Use SU-6908 connection software, choose [Open File] & [Write] to write the modified BIN files to the Master IC.
6. Please weld the Master tape to the product and test it completely. Make sure the production of the master tape is correct.

5-4. The reason why Check Sum are different and Verify Fail between master tape IC and Clone copy IC :

1. The data types from Master and Slave IC are different, one could be 0x00 and another could be 0xFF.
2. While testing and producing Master IC on the PCB board, it could have executed Delete File function on File System. The usual Delete File function is just mark on the File system, it has not erased all contents. If you choose "Auto mode" while Clone Master, it will skip the delete files automatically. So the function is normal, but check sum is different. If you want them to be all the same, please choose "2. Clone from Master" \ "2. Global mode" while Clone Master. So that it can clone the data with the delete File data together.



WEB: www.leap.com.tw
www.leap.net.cn
E-MAIL: service@leap.com.tw

LEAP Headquarters

TEL: +886-2-2999-1860 #15
FAX: +886-2-2999-9873
6F-4, No.4, Ln.609, Sec.5, Chongxin Rd.,
Sanchong Dist., New Taipei City 24159,
Taiwan, ROC

LEAPTRONIX Headquarters

TEL: +886-2-2999-3837
FAX: +886-2-2999-7710
9F-4, No.18, Ln.609, Sec.5, Chongxin Rd.,
Sanchong Dist., New Taipei City 24159,
Taiwan, ROC

Shanghai Office (China)

TEL: +86-21-5777-1796
FAX: +86-21-5777-1796 #838
Songjiang District, Shanghai Xin Brick
Road, Room 301, 518, No. 24

Beijing Office (China)

TEL: +010-6265-2592
FAX: +010-6265-5303
No. 615, Apartment, No. 33 Suzhou St.,
Haidian District, Beijing

Dongguan Office (China)

TEL: +0769-8534-9978
FAX: +0769-8534-9686
12F, Hua'an Shangzhu Building, Changqing
St., Chang'an Town, Dongguan