

PROGDSC utilization

The MC56F83xxx family is the latest DSC family, but there is not dedicated programming tools to program it in production from NXP.

The Third Party PEMicro has developed a dedicated tools "DSCPROG tools", which can program DSP56800E and DSP56800EX family via JTAG port through Multilink Universal or OSJTAG circuit. In detail, the supporting DSC family includes:

DSP56800E core family:

MC56F8000 family: MC56F8006, MC56F8013, MC56F8014, MC56F8037...

MC56F83xx family: MC56F8323, MC56F8322, MC56F8345, MC56F8346...

MC56F82xx family: MC56F824x, MC56F825x...

DSP56800EX core family

MC56F84xxx family: MC56F84789, MC56F84553..

MC56F82xxx family: MC56F82748, MC56F82723

MC56F83xxx family: MC56F83789...

Requirement: user has to order PE device, for example Multilink Universal device, which can be used to download code via JTAG by both the PROGDSC tools and the CodeWarrior for MCU ver11.x tools.

As you know that the CodeWarrior for MCU ver11.x tools is standard and recommended tools for DSC family, it supports DSP56800E and DSP56800EX cores family.

The PROGDSC tools is PE tools from PEMicro company, you can download it from the link:

http://www.pemicro.com/products/product_viewDetails.cfm?product_id=15320158&productTab=1

For the MultiLink Universal device, pls refer to the link:

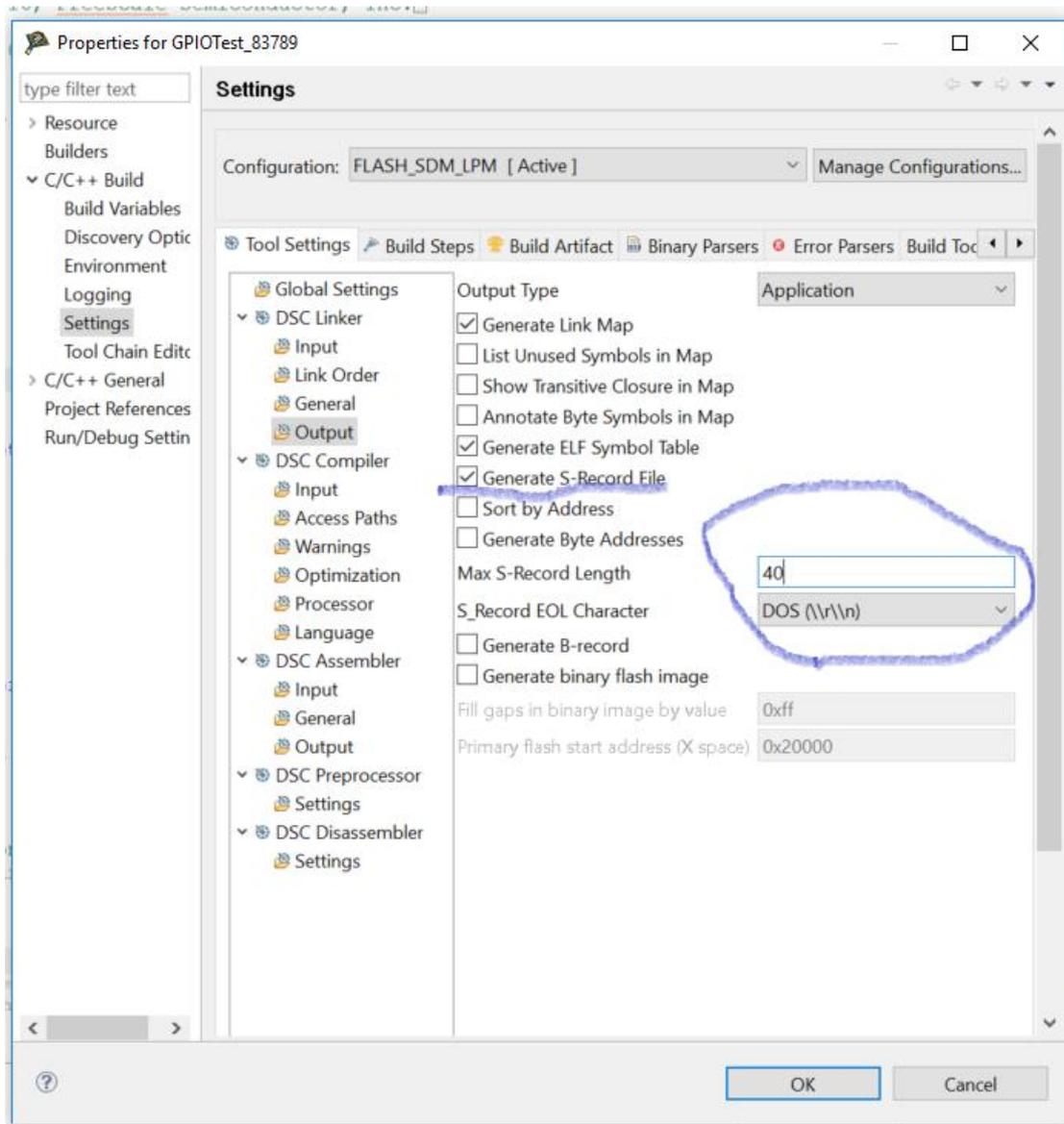
<http://www.pemicro.com/>

In the following part, I introduce the three parts, the first is how to generate S-Record file based on CodeWarrior for mcu tools. The second is the hardware connection. The third part is the PROGDSC tools utilization.

1. Generating S-Record file

1.1 the procedure to generate the S-Record file based on your application with CodeWarrior for MCU ver11.x tools.

In the Properties Menu of CodeWarrior for MCU ver11.x tools, click C/C++ Builder->Settings, check the Generate S-Record File box, rebuilding your application, you can get the S-Record file



1.2 The generated file is C:\DriveG\TestData\GOIO_PIT_83789.elf.S, the *.s is hidden extension name. so you would better delete the elf, with the file name GOIO_PIT_83789.S

2. Hardware connection

2.1 Hardware connection



The PROGDSC tools uses JTAG port to program on-chip flash of DSC family, the Multilink Universal device is connected to J10 14 pins male JTAG connector on the MC56F83000-EVK board. The USB cable connected to J14 on MC56F83000-EVK is used to power the board,

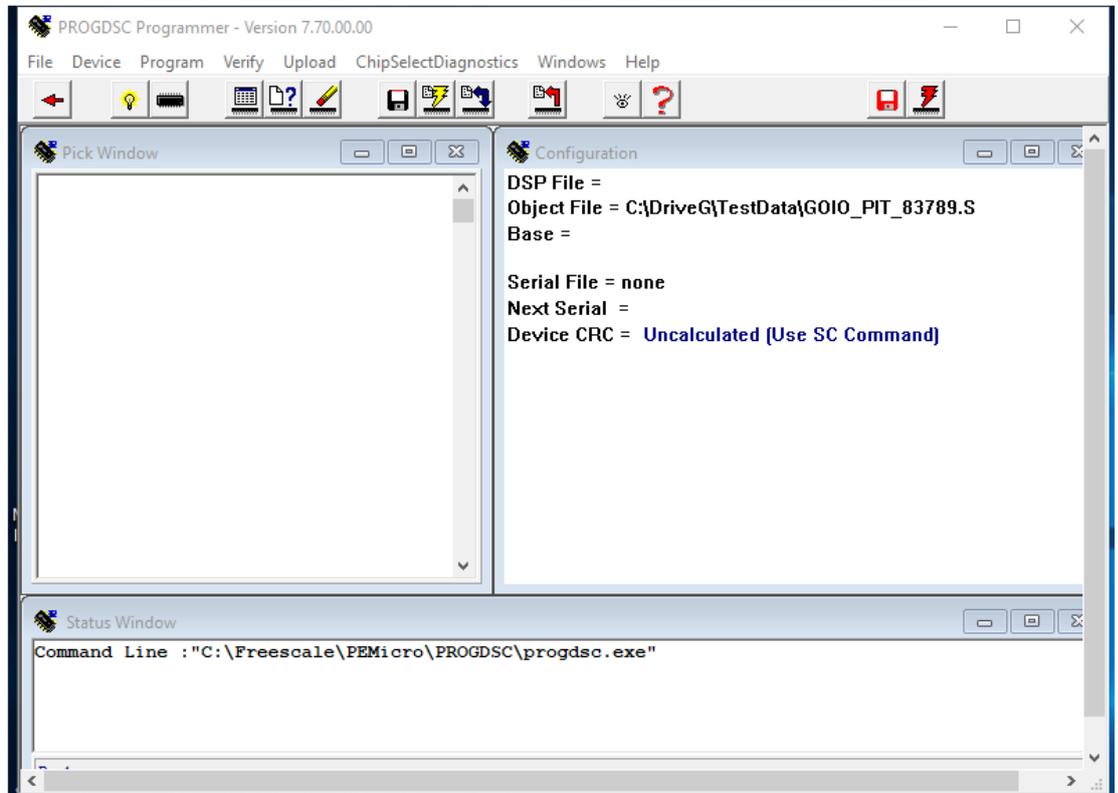
On the MC56F83000-EVK board, the **J11 jumper** must be open so that the Multilink Universal device can control JTAG port of DSC, the on-board OSJTAG is DISABLED.

The PROGDSC tools also supports OSJTAG protocol, so for the MC56F83000-EVK board, user can connect USB cable to J8 connector and use PROGDSC tools to program on-chip flash of MC56F83789 without Multilink Universal device.

3. PROGDSC utilization

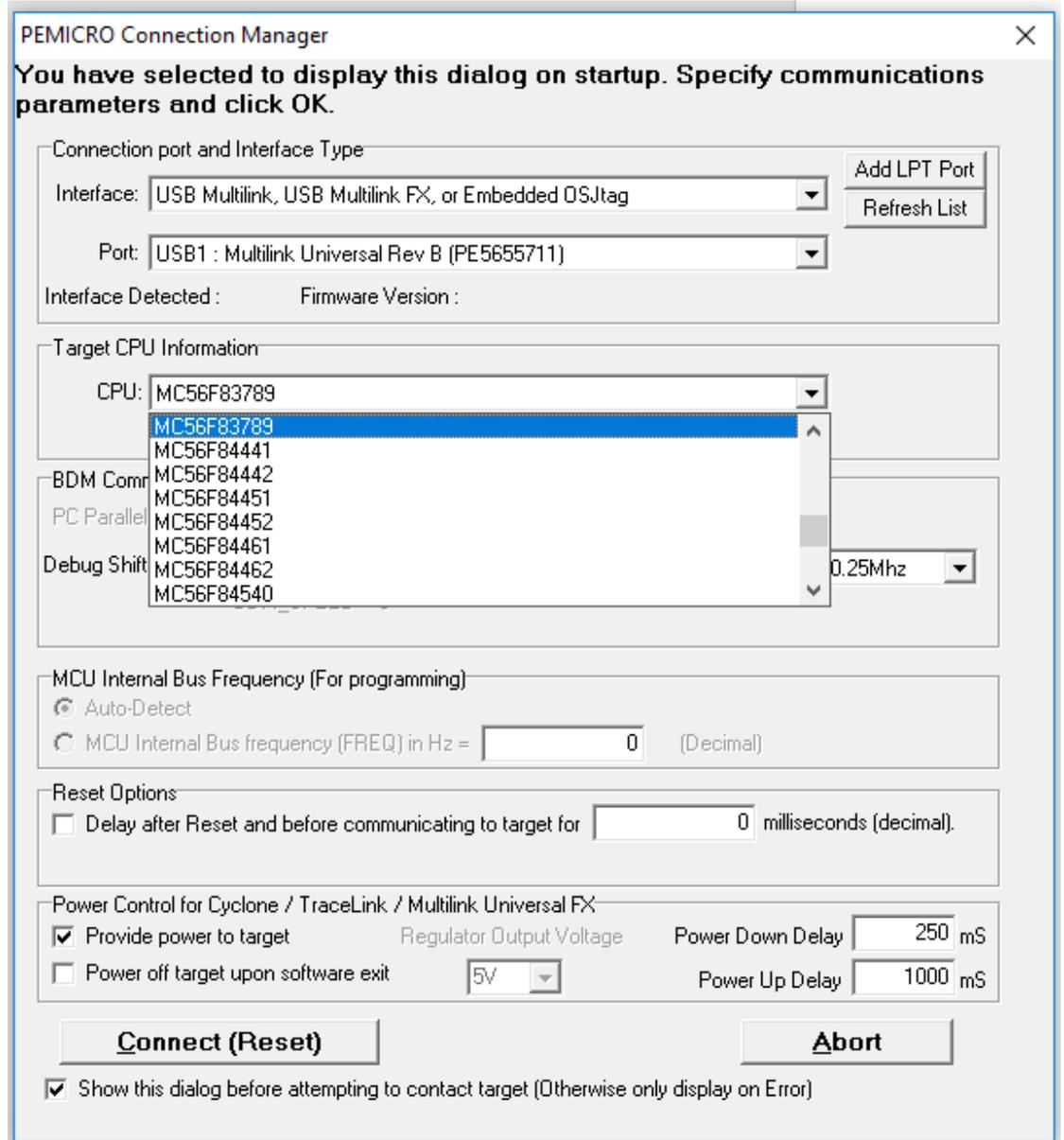
3.1 PROGDSC tools configuration.

After user clicks the “PROGDSC Flash Programmer”, the PROGDSC programmer tools will appear as the fig. While the PEMICO Connection Manager will appear.

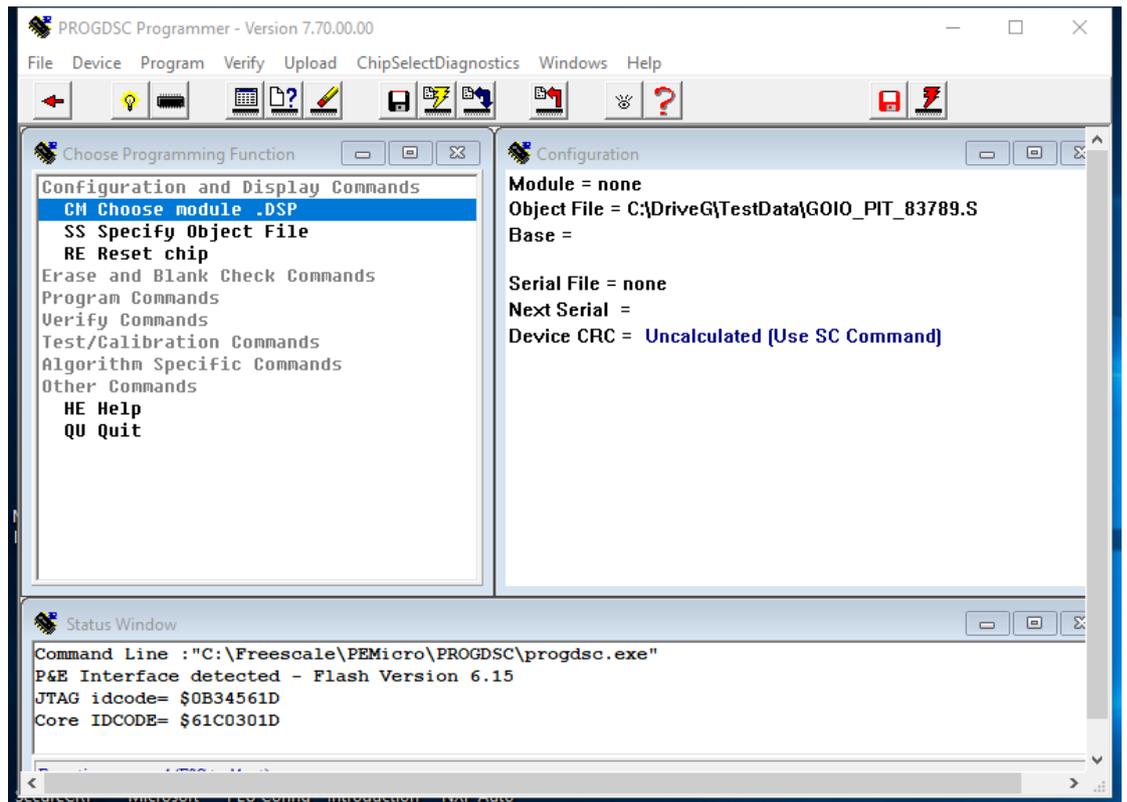


On the PEMICO Connection Manager, if the board is power on and MultiLink Universal device is connected, the PROGDSC tools can detect the MultiLink Universal device automatically, user can select the processor part number in the CPU box.

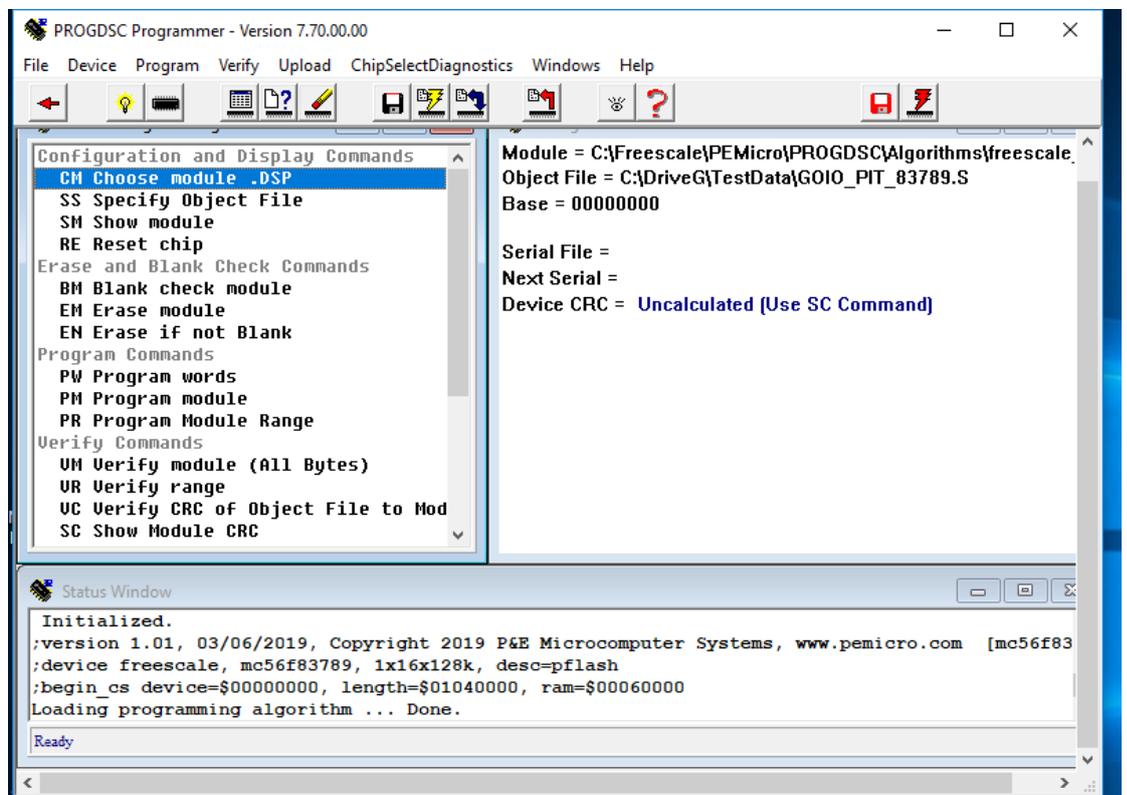
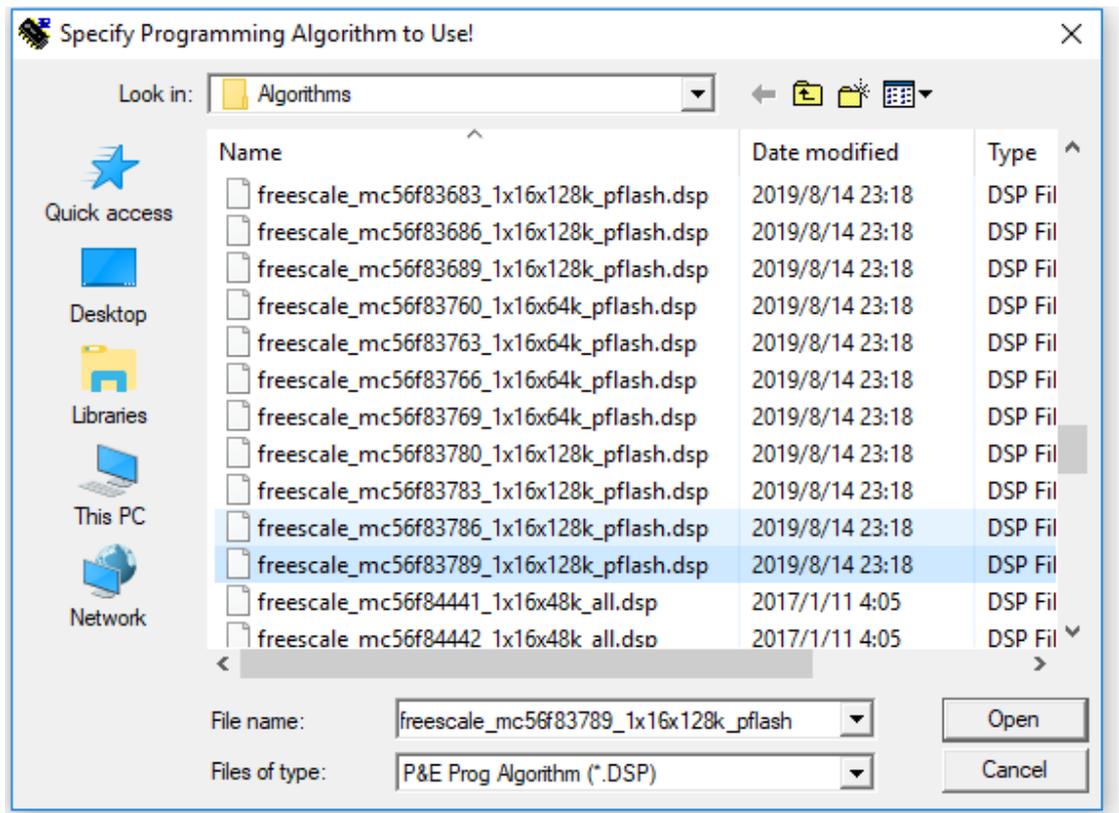
If the board is power off or the MultiLink Universal device is NOT connected, an red error message will appear automatically.



Then user can click "Connect(Reset)" button to reset the processor. After Reset, the "Choose Programming Function" menu will be updated, and the "Specify Programming Algorithm to Use" will pop up, then select the corresponding *.DSP file.



Select the correct part number and click "OPEN" button, the commands on the "Choose Programming Function" menu can function, in other words, all the erasing, programing instructions can work.

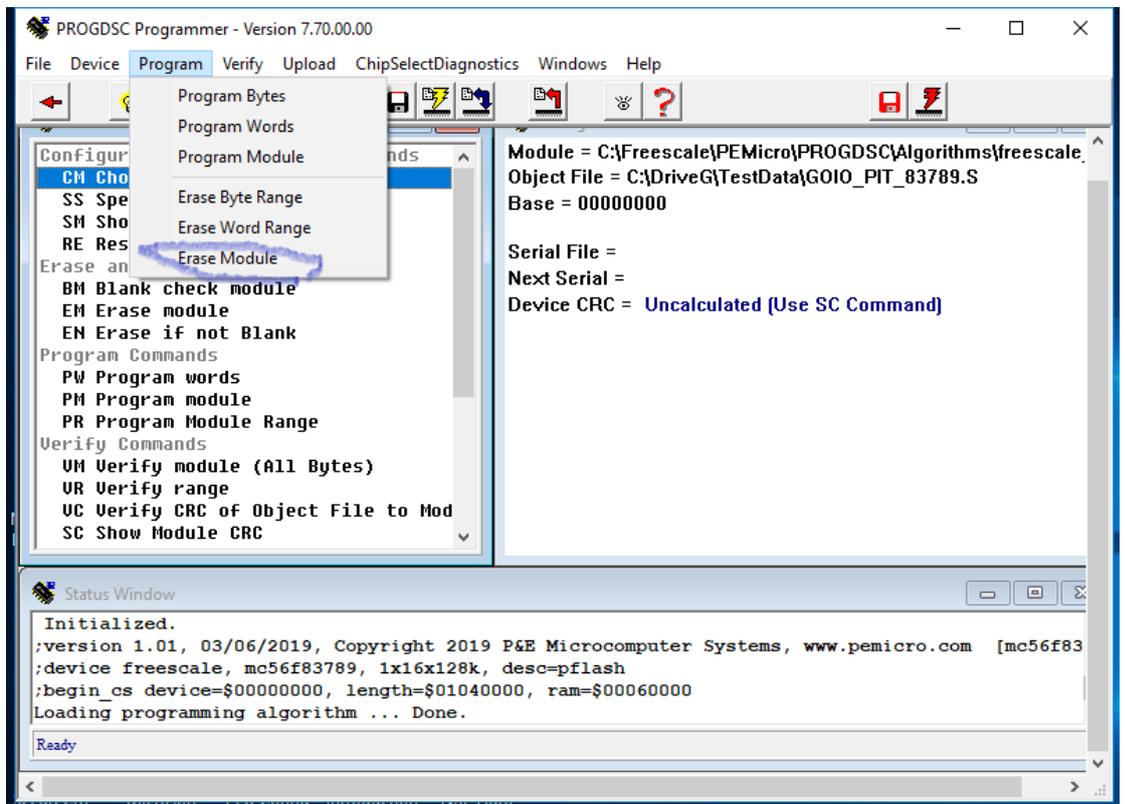


3.2 Commands introductions

3.2.1 Erase the on-chip flash, after the command, the on-chip flash will

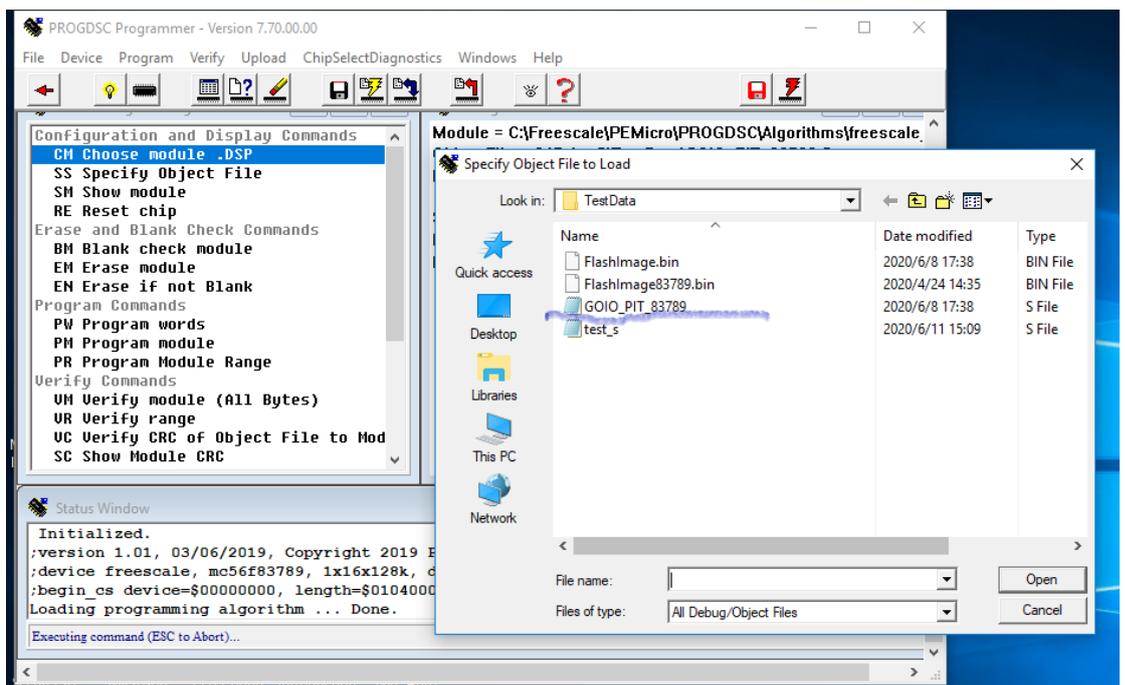
be erased

Click Program->Erase Module

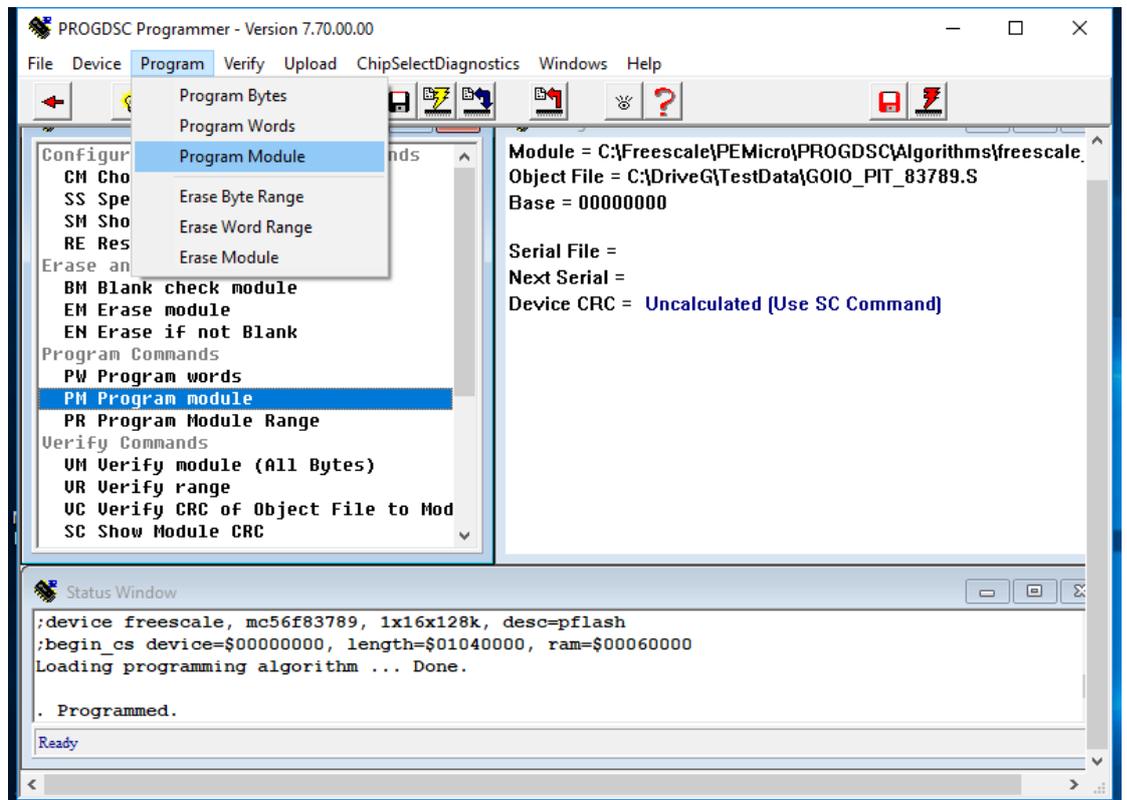


3.2.2 load the S-Record file

click File->Specify Object File, select the S-Record file



3.2.3 Click Program->Program Module



Now, the S-Record file has been programmed to the flash, after hardware reset (pressing the SW1 Reset button on MC56F83000-EVK board), the LED toggles.