
EVAL-L9958 Graphical user interface – (GUI)

Introduction

This document describes the STSW-L9958, the Graphical User Interface (GUI) dedicated to set and control the EVAL-L9958 board (DC Motor Driver application boards for L9958) through the SPI protocol and the EN, DI and DIR pins. The STSW-L9958 has been developed using Labview[®] and it works with SPC560P-DISP evaluation board programmed with a dedicated FW (GP-Pictus.elf) .

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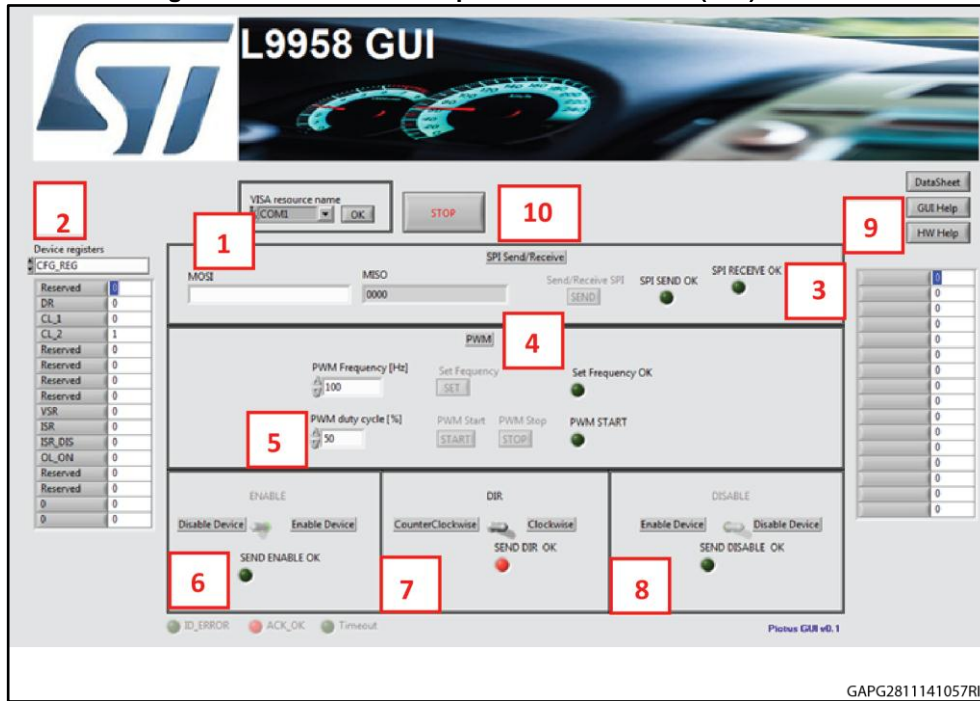
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1 Graphical User Interface description

The L9958 GUI includes the fields highlighted in *Figure 1: ":STSW-L9958 Graphical User Interface (GUI) for EVAL-L9958 "*:

Figure 1: ":STSW-L9958 Graphical User Interface (GUI) for EVAL-L9958



- Com Port Setup** : the com port is selected where the microcontroller is connected too.
- SDI**: selecting the specific device register and setup all the bits to the required value
- SDO**: reading the SDO register of the device.
- SPI Send/Receive**: through this menu, by pushing the [SEND] button, it is possible to send the SPI command configured in the SDI menu (menu 2) or directly send an SPI command writing the command in the MOSI field in hexadecimal. In this menu there is the possibility to read also the device answer MISO. The two LEDs, SPI SEND OK and SPI RECEIVE OK are used to give feedback on the SPI communication (red means communication is running properly).
- PWM**: through this menu setup the Frequency and the Duty cycle of the PWM. By pushing the [START] button, the PWM starts, by pushing the [STOP] button the PWM is stopped. Before sending a PWM, the Frequency value must be confirmed by pushing the [SET] button.
- ENABLE**: through this menu set the level of the EN pin.
- DIR**: through this menu set the level of the DIR pin.
- DISABLE**: through this menu set the DI pin of the device.
- HELP**: through this menu download the help, the Datasheet and the HW Help.

2 How to use the GUI to configure the device

The following procedure must to be followed to configure the GUI and to set the EVAL-L9958 evaluation board.

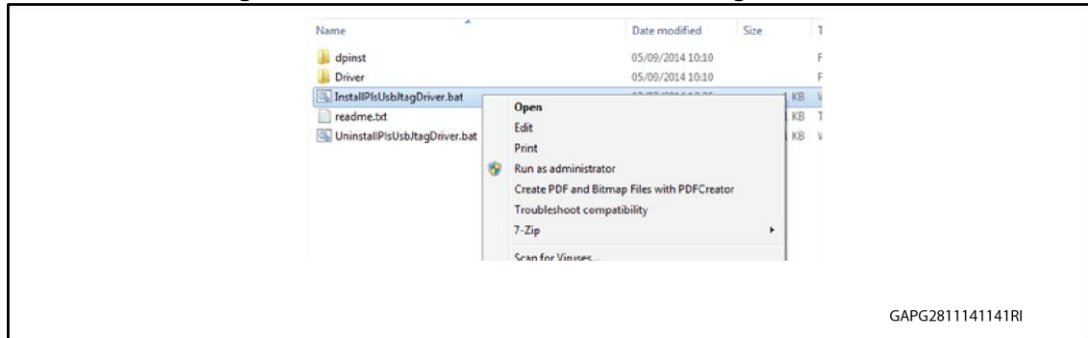
1. Configure the COM port.
2. Press "OK".
3. Insert the register configuration value of the SPI in the field #2.
4. Press "SEND" in the field n°4. If the communication is established and the command is sent, the LED "SPI SEND OK" must be red. The LED "SPI RECEIVE OK" becomes red if the message sent by the device has been received properly.
5. In the field #3 is reported the device answer; in the field # 4 it is possible to read the SDI and SDO signals expressed in hex.
6. Set the PWM frequency value in the field #5
7. Press "SET" button.
8. Configure the PWM Duty Cycle
9. Press "START" button.
10. Enable the Device (EN) by pressing the corresponding button in the field #6. If the communication has been established and the configuration command has been sent, the led "SEND ENABLE OK" will appear red. The LED D1 on the EVAL-L9958 will be turned ON.
11. Enable the Device (DI) by pressing the corresponding button in the field #8. If command has been received and decoded properly, the LED "SEND DISABLE OK" will appear red and the LED D5 on the EVAL-L9958 will be turned OFF.
12. Pressing the button "DIR (field #7), the direction of the DC motor is inverted and the LED "SEND DIR OK" will appear red.
13. Pressing "STOP PWM" field #5 the PWM will be stopped and consequently the motor will be stopped as well.
14. Pressing the button "STOP" on the top side of the GUI the execution of Labview will be stopped.

3 SPC560P-DISP: USB drivers installation

The GUI needs a dedicated USB driver to enable the serial communication channel. If the driver is not installed or not appropriately configured, the following procedure describes how to uninstall then install the latest driver. To install the drivers the board does not need the external supplier; the USB provides the supply voltage.

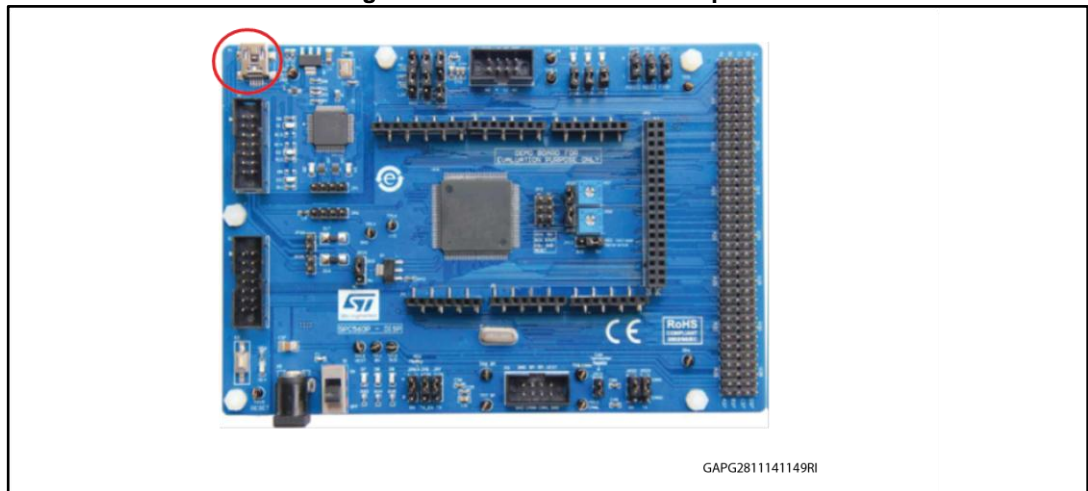
- Once the installation is completed, connect the USB cable to the SPC560P-DISP board; the USB drivers are installed.
- Right click on "InstallPisUsbJtagDriver.bat" then select "Run as administrator"

Figure 2: USB Driver Installation – folder "JtagUsbDriver"



- Once the installation is completed, connect the USB cable to the SPC560P-DISP board; the USB drivers are installed.

Figure 3: SPC560P-DISP: USB input



- From "Start" Menu, right click on "Computer" item then select "Manage". From "Start" Menu, right click on "Computer" item then select "Manage".

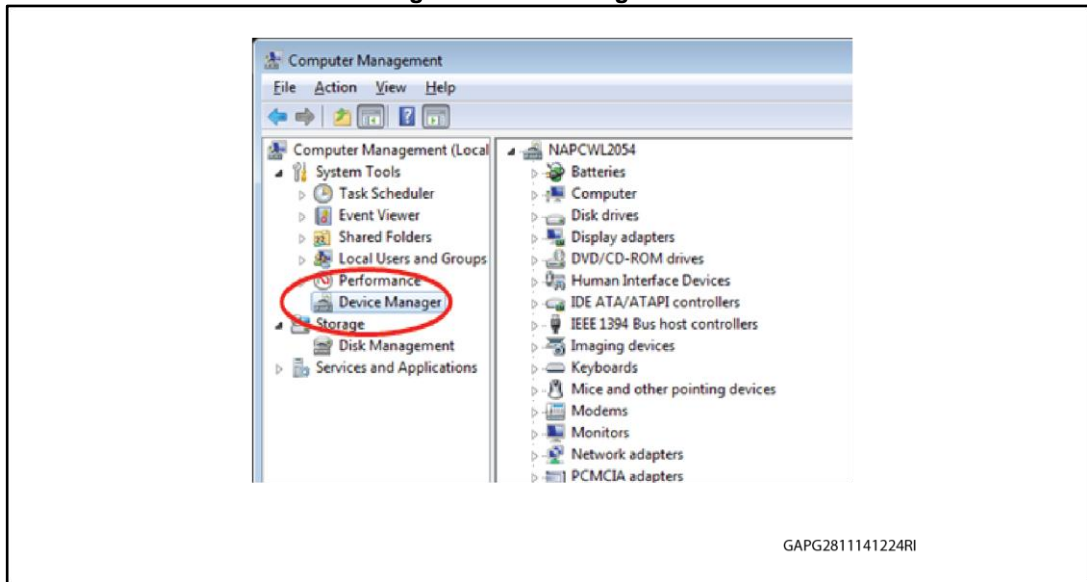
Figure 4: Start menu, Computer, Manage



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- Once the Computer management popup appears, select Device Manager from the System Tools menu

Figure 5: Disk Management



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- Expand the item Universal Serial Bus controllers : the item “ PLS USB JTAG Adapter for SPC5xxx A ” and “ PLS USB JTAG Adapter for SPC5xxx B ” will appear.

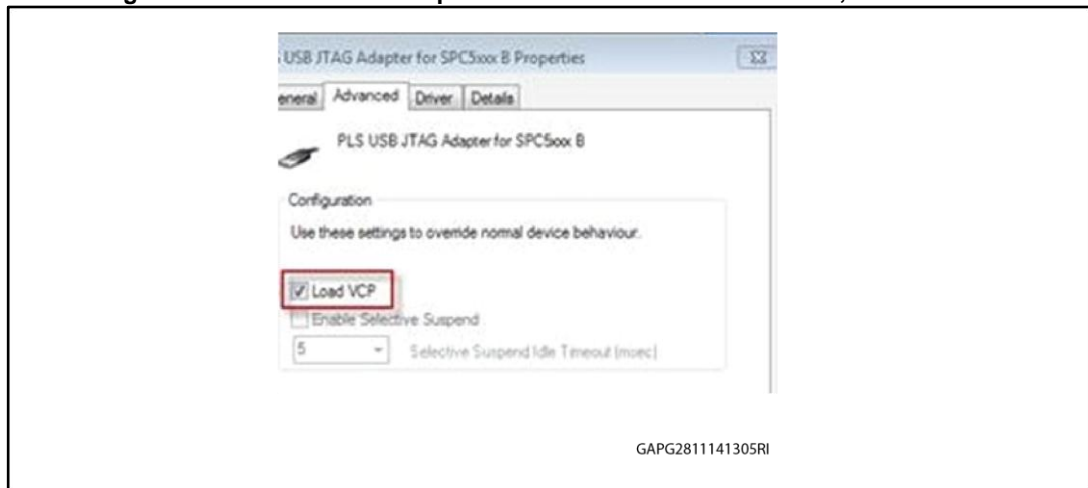
Figure 6: PLS USB JTAG Adapter- COM Ports



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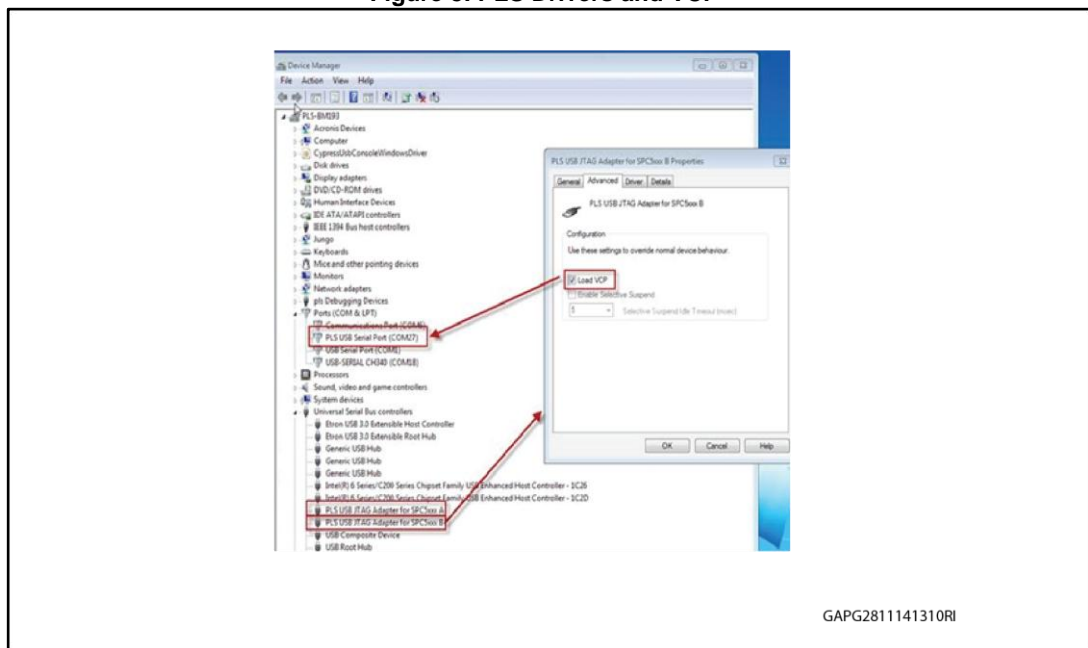
- In order to enable the COM port, right click on “PLS USB JTAG Adapter for SPC5xxx B” (only this) then click “ Proprieties ”.
- A new window will pop up: select the tab “Advanced” then flag the “ LOAD VCP ” (Virtual COM Port) box. This item should be already flagged, do not modify it.

Figure 7: PLS USB JTAG Adapter for SPC5xxx B - Advanced Tab, Enable VCP



- Click OK button to continue.
- Disconnect the USB cable from the SPC560P-DISP board then reconnect it. A new COM port will be detected, and Windows will automatically install the new drivers. From the Device Manager window check the new COM port available.

Figure 8: PLS Drivers and VCP



- Now the COM port is available on the SPC560P-DISP and the USB port on the SPC560P-DISP board can be used for serial communication with the PC.

4 Labview driver: installation guide

The L9958 GUI can be used stand alone without a Labview license installing the free SW named "Runtime Engine for Labview 2013" and "VISA Runtime 5.4"; here below the links:

Runtime Engine for Labview 2013: <http://www.ni.com/download/labview-run-time-engine-2013/4059/en/>

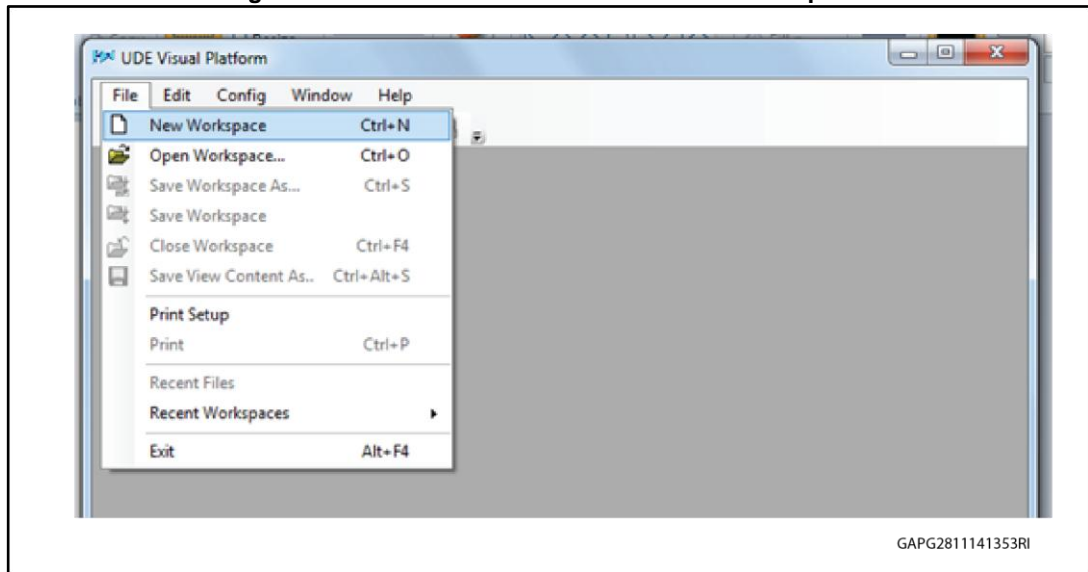
VISA Runtime 5.4: <http://www.ni.com/download/ni-visa-run-time-engine-5.4/4231/en/>

5 SPC560P-DISP: Load Firmware

To use the L9958 GUI a dedicated FW (file name: “GP-Pictus.elf”) must to be loaded on the microcontroller in the SPC560P-DISP board following below procedure (the board is supplied by the USB cable thus the external PSU is not required):

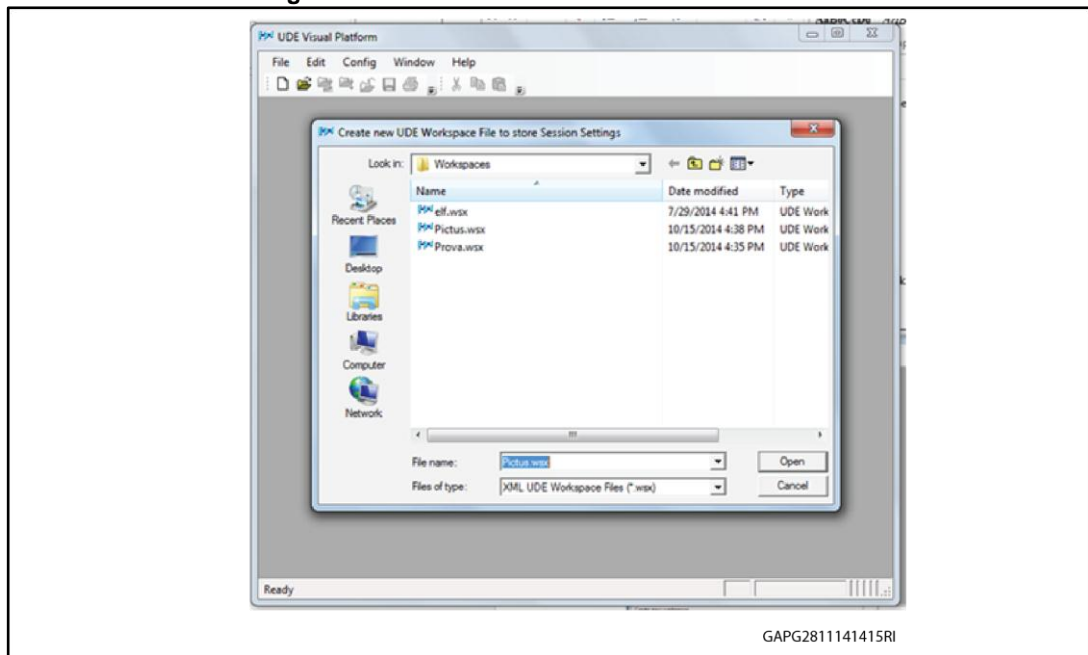
- Start UDE Visual Platform. If the SPC5Studio is installed UDE Visual Platform is already available otherwise it can be downloaded from the link: <http://www.pls-mc.com/spc5-udestk>
- Create a New Workspace for SPC560P-DISP. Click File>New WorkspaceX

Figure 9: UDE Visual Platform: File and New Workspace



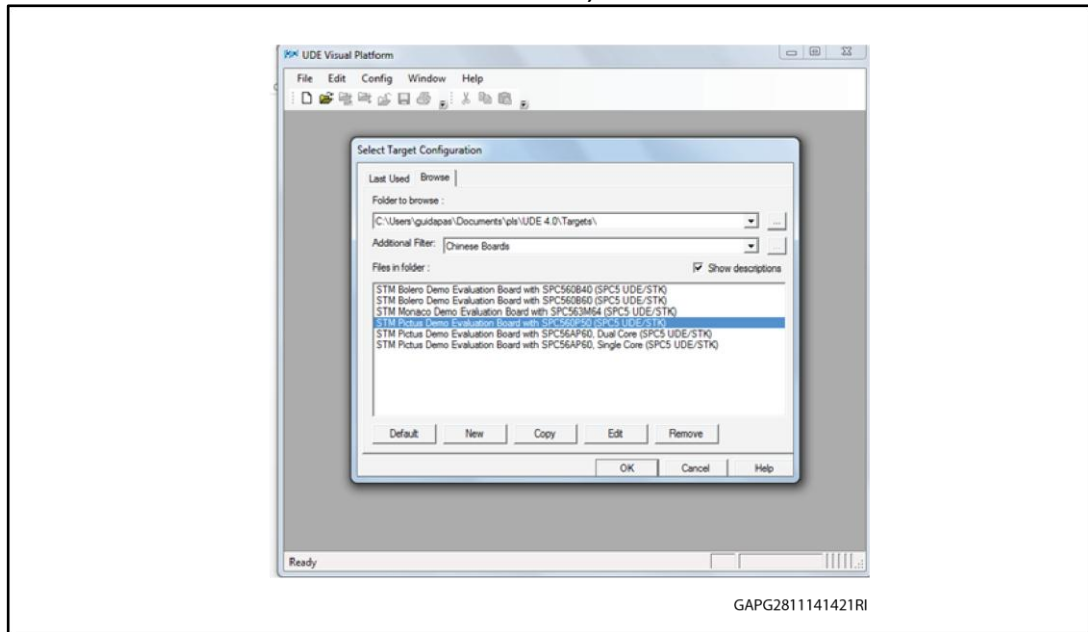
- Name the new Workspace i.e. Pictus then select OPEN

Figure 10: UDE Visual Platform: Define File name



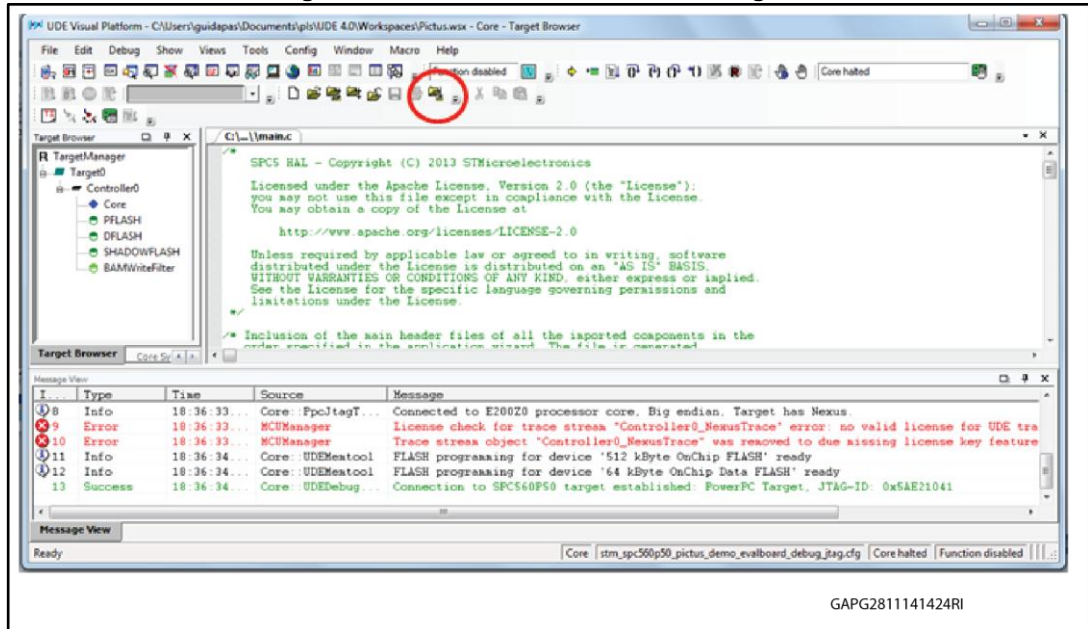
- Select “ STM Pictus Evaluation Board with SPC560P50(SPC5 UDE/STK)” then click OK

Figure 11: UDE Visual Platform: Select “STM Pictus Evaluation Board with SPC560P50(SPC5 UDE/STK)”



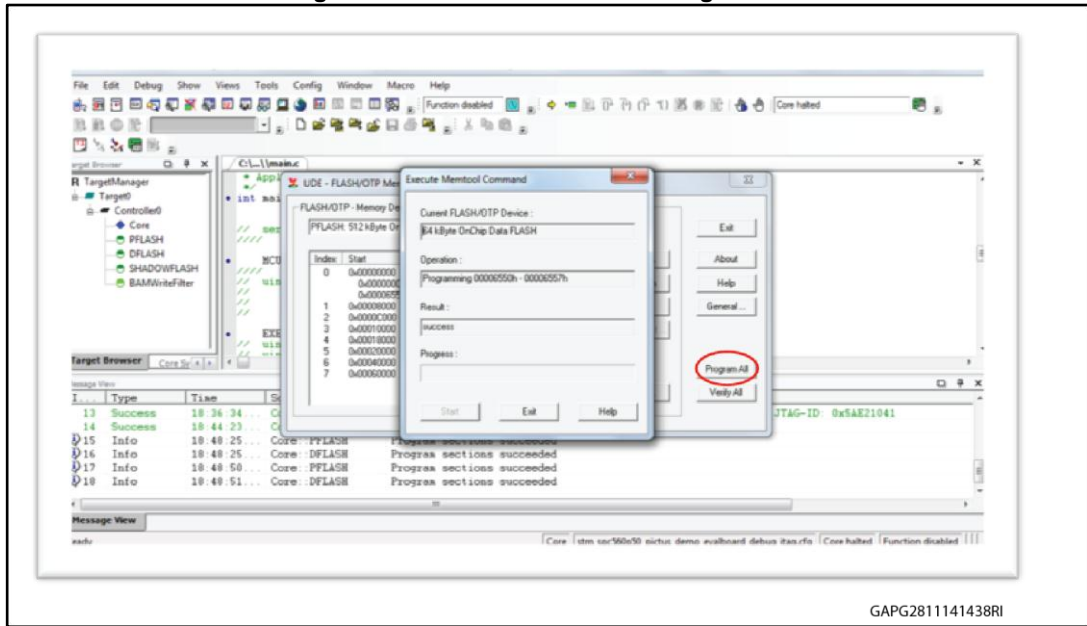
- UDE Visual Platform 4.0 will be refreshed and new functionalities will appear, then click on the icon “Load Program” highlighted in the red circle; browse the file “GP-Pictus.elf” then click “Open.”

Figure 12: UDE Visual Platform: Load Program



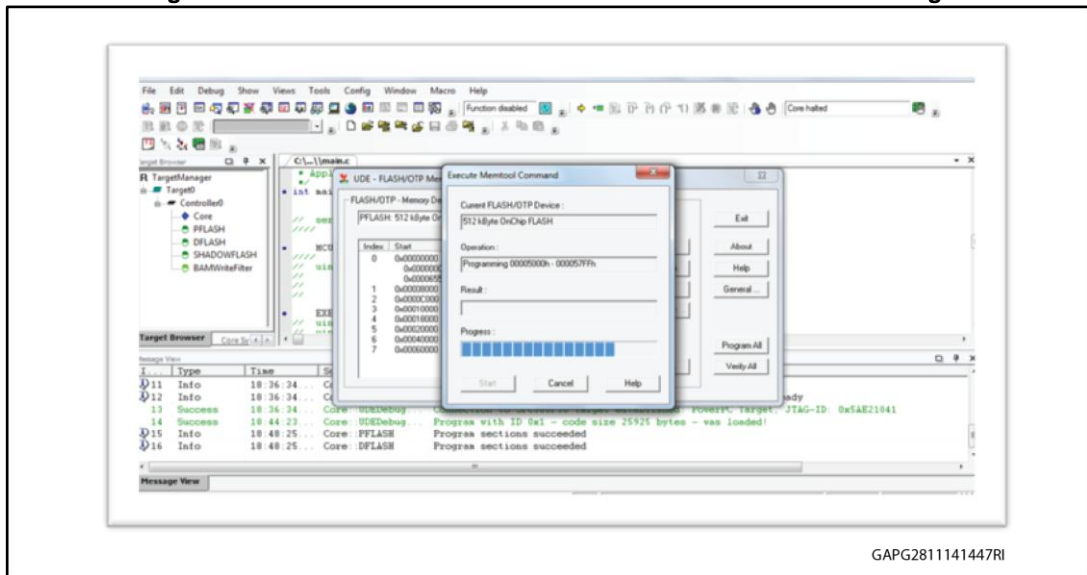
- Click on “Program All”.

Figure 13: UDE Visual Platform: Program All



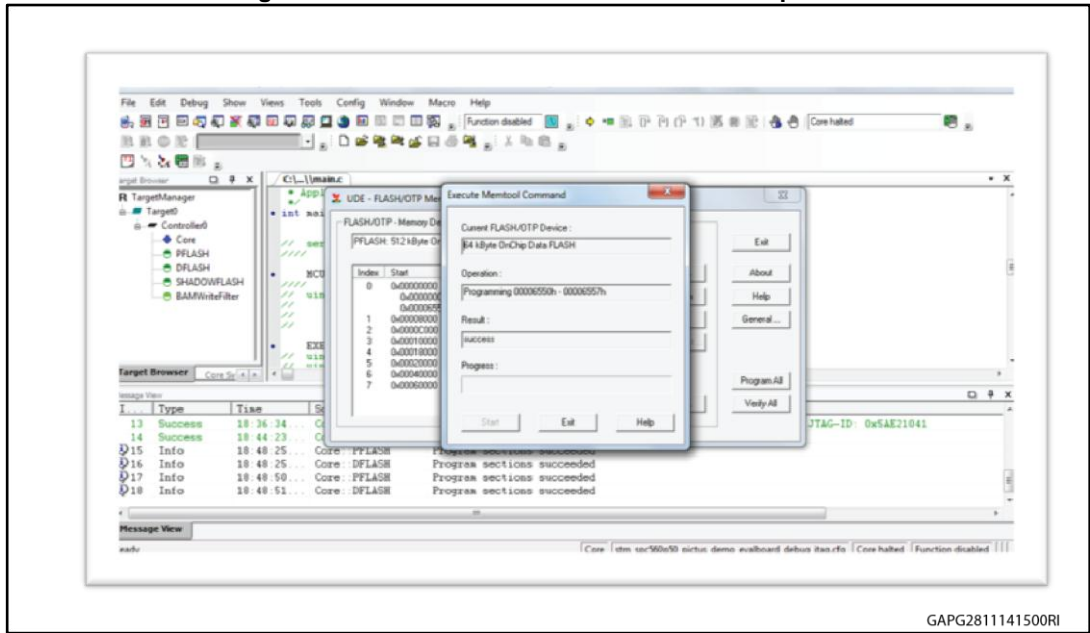
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Figure 14: UDE Visual Platform: Execute Memtool Command - loading



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Figure 15: UDE Visual Platform: Procedure completed



- When the procedure is completed click on “Exit”. The SPC560P-DISP is programmed and the SPC560P-DISP is ready to be used with the Graphical User Interface (GUI) dedicated to configure and control the board EVAL-L9958.

6 Revision history

Table 1: Document revision history

Date	Revision	Changes
02-Dec-2014	1	Initial release.

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