Introduction

The STSW-EVLDDLH32GEN is the graphical user interface (GUI) dedicated to set and control the L99LDLH32 device assembled in the corresponding evaluation board EV-L99LDLH32GEN. The STSW-EVLDDLH32GEN has been developed by using Visual Studio/C sharp and it works with the board EVAL-SPC582B programmed with a dedicated firmware.

Figure 1. STSW-EVLDDLH32GEN graphical user interface
Get software

Search on www.st.com, STSW-EVLDLH32GEN and in the "Tools & Software" section. To get the software (GUI + Firmware) follow the procedure below.
2 Software installation

2.1 Firmware
The board EVAL-SPC582B is programmed with a specific firmware.

2.2 GUI installation
The GUI installation has the following steps:

• Launch SetupRearLed.exe

![Figure 2. Setup wizard](image)

• Following step by step the wizard you are able to install the GUI RearLed. To continue the installation you have to accept the terms of the license agreement:
• Next you have to choose the installation folder:
• The installation continues till the end:

**Figure 5. Copying files**

![Image: Copying files]

- Before ending the installation, it is proposed to install FTDI drivers. Skip this step if you want to install them at a different time (drivers could be obtained from the ftdichip website) or if they are already installed.

**Figure 6. FTDI installation (1/4)**

![Image: FTDI installation (1/4)]
To complete the FTDI installation the following dialog box is shown to confirm that the drivers were successfully installed.
Figure 9. FTDI installation (4/4)

The drivers were successfully installed on the computer.
You can now connect your device to this computer. If your device came with instructions, please read them first.

<table>
<thead>
<tr>
<th>Driver Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTDI CDM Driver Packa ...</td>
<td>Ready to use</td>
</tr>
<tr>
<td>FTDI CDM Driver Packa ...</td>
<td>Ready to use</td>
</tr>
</tbody>
</table>
3 GUI description

The main form contains four tabs for device control.

**Figure 10. Tabs for device control**

It is also embedded the communication traffic monitor, showing communicated data between GUI and MCU.

3.1 Main menu

**Figure 11. Main menu**

It contains the following actions:

- Communication: possibility to reset communication traffic and clear counters
- View: SPI registers overview
- Settings: allow to configure periodical refresh of registers
- Service: generic SPI frame allows to send a customizable SPI frame to a specific device selected through a combo box

**Figure 12. Generic SPI frame**
3.2 Status strip
The icons show the interface status between FTDI and GUI.

*Figure 13. Status strip*

- board not connected
- normal application operation (communication between MCU and GUI correctly established)

3.3 Device diagnostic/communication
It shows SPI traffic detail (Tx and Rx).

*Figure 14. Diagnostic/communication panel*

Enable/Disable periodical reading of status registers and GSB

Refresh all registers (both control and status)

Clear all status registers

Board status section shows the status of the device pin HWLO and DIAG.
3.4 Standard control

Figure 15. Standard control

This main tab shows the main device features, giving the possibility to apply different device modes, enable HS gate, execute self-test, set different thresholds and select diagnostic data to be periodically read and displayed or stopped.
3.4.1 Device control panel

Figure 16. Device control panel

This table reports all the channels of the selected device. For each channel you can set:

- DIN MAP
- Duty cycle
- Current

There is also diagnostic info:

- OL (Open load)
- SHT (Short to GND)
- SHT_VPRE (Short to VPreg)
- VLED (V indication)

3.4.2 Operative mode

Figure 17. Operative mode

To change device status use buttons ENABLE, GO STBY and FAIL SAFE. The device ID is managed using the buttons Get or Set Slave_ID.
3.4.3 **Global status byte**

Here is reported the GSB value of the device:

![Figure 18. Global status byte](image1)

**Figure 19. Faults**

Here are reported the device warnings/errors:

- WDG fail (watchdog error)
- VS UV (undervoltage)
- TW (thermal warning)
- TSD (thermal shutdown)
- PG_NOT PREG (power not good for pre-regulator)
3.4.4 Add/Remove device form

Figure 20. Add/Remove device form

- A new device can be added (+) or removed (-)
- Device status monitored until this checkbox “Autoscan” is checked
- Device status can be in 3 states:
  1. Green (normal mode)
  2. Red (failsafe mode)
  3. Yellow (standby mode)
For each device it can be set (by right click):
1. Device ID
2. Type
3. Set device in normal, failsafe or standby mode
4. Send watchdog trigger
5. Read&Clear command

Figure 21. Device setting
Period for watchdog (WD) serving is adjustable by item “WDG TIME”.
WD serving is applied by refreshing the WD_TRIG bit in one of the control registers.
Enabled WD—enable/disable WD serving by refreshing the WD_TRIG bit
There is also the possibility to set the WD refresh time sent by MCU through a dedicated bar and button (“Send Timing”). This allows the testing of device WD timeout failure.
3.6 Control register page

This page displays the control registers for each device selected in the following combo box. It is possible for each column to change the values and read or write new values by clicking the related buttons 

!![Figure 23. Control register page](image-url)
This page displays the status registers for each device that you have selected in the following combo box.

It is possible to read 4 status registers at the same time by clicking "Burst Read" button, and it is possible to read or clear some registers by clicking the related buttons.
3.8 Device info

The form below shows the device ROM and can be refreshed with the dedicated button, and details about all the devices info stored in ROM:

- UR7H for L99LDLH32
- UR7L for L99LDLL16

![Figure 25. ROM memory map](image-url)
3.9 **BroadCast**

The user can send a broadcast CAN frame to devices connected to the same chain setting current or duty cycle through the below dialog box.

*Figure 26. BroadCast CAN frame*
3.10 FTP programming dialog

The user can access the Non-volatile Memory (NVM) section of the selected device through the below dialog box. The user can read or write one or more memory sectors modifying single or multiple bytes.

Figure 27. FTP programming dialog
## Revision history

*Table 1. Document revision history*

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-Sep-2022</td>
<td>1</td>
<td>Initial release.</td>
</tr>
</tbody>
</table>
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