

Interfacing FlashRunner 2.0 with TLD devices

Power Supply

External Power Supply higher than or equal to **+18V** is **required for writing OTP** non-volatile memory.

According to TLD7002-16ES pinout above voltage has to be applied between VS and GND.

Furthermore it is strongly recommended to power cycle the target between a project executions.

Prerequisites

- **GPINO** shall be accessible and controllable with a voltage between **0 V** (low level) and **5 V** (high level).
- If multiple devices are connected on the same HSLI bus during the programming phase, the device with address 0x01, if present, should be the last (temporal) device programmed. This is because **0x01** is the default address for non-programmed devices.

Algorithm Notes

Supported protocols:

- HSLI (**H**igh **S**peed **L**ightning **I**nterface)
- Maximum Protocol Frequency = 1 MHz
- Minimum Protocol Frequency = 230.4 KHz
- Default Protocol Frequency = 500 KHz

CAN-FD Adapter usage:

Since **HSLI** protocol is basically an **UART protocol over CAN bus**, a transceiver must be used to fulfill hardware requirements.

There are several ways to interface FlashRunner with the target device.

Please consult **DC11291 - FlashRunner 2.0 CAN FD adapter.pdf** guide to choose the one that best fits your needs.

Supported devices:

- TLD7002-16ES (Multi-channel LED driver)

Programmable region is reported below:

MEMORY	SIZE	PAGE SIZE	Notes
OTP (O)	80B [0x83 - 0xAA]	N/A	16-bit words addresses

Algorithm Additional Parameters

HSLI Interframe Delay:

- 2500 us [default]

In case of target device being previously programmed, one of the OTP configuration parameters is Interframe Delay. You can set this parameter to optimize HSLI communication timings otherwise the longest one will be used by default.

Print ADDRESS, CRC16 and GP_WORD:

- When selected values of CRC16, SLAVE_ID and GP_WORD will be printed out both to Terminal and Log.

Commands List

Please refer to `HELP libtld.so` command.

Memory types:

O → OTP

PROGRAM

PROGRAM <O>

Program command for OTP - Manual mode not allowed.

(Verify readout of programmed OTP is done along programming flow, target address taken from FRB file).

If more than one device share the same HSLI bus and one of them has to be given address 1, it has to be programmed last.

EMULATE

EMULATE <O>

Emulation command for OTP - Manual mode not allowed.

(Verify readout of programmed volatile OTP area is done along emulation flow, target address taken from FRB file).

SELECT_DEVICE

SELECT_DEVICE <addr>

Select a previously programmed device to connect to.

This command will fail if the target device is not already programmed or programming is corrupted.

VERIFY

VERIFY <O> <R>

Verify readout command for OTP - Manual mode not allowed.

This command should follow **SELECT_DEVICE** command with a valid target address provided.

It can be used to double check the device if something went wrong during OTP programming (in that case

power cycle is requested)

TEST_1

TEST_1 <out_0> ... <out_15>

Tests the configuration parameters on a previously programmed device and selected throughout SELECT_DEVICE command. Selected channels are driven ON for 5 seconds.

TEST_2

TEST_2 <out_0> ... <out_15>

Tests the configuration parameters on a previously programmed device and selected throughout SELECT_DEVICE command. Selected channels toggle ON/OFF at 1 Hz for 10 seconds.