EVAL-1ED38x0DCT user guide

Driver configuration tool board for EiceDRIVER™ Eval-1ED3890Mx12M

About this document

Scope and purpose

This user guide is intended to provide an overview of the evaluation board Eval-1ED38x0DCT and the associated EiceDRIVER™ 1ED38x0 DCT software. This companion board was designed to be used with the Eval-1ED3890Mx12M evaluation board in order to support the configuration and adjustment of all parameters and key features of the 1ED3890MC12M or 1ED3890MU12M present on the Eval-1ED3890Mx12M evaluation board.

Intended audience

This document is intended for technical specialists who have an Eval-1ED38x0DCT board and would like to use it to evaluate the Eval-1ED3890Mx12M and Eval-1ED3491Mx12M evaluation boards. The board is intended to aid in configuring the Eval-1ED3890Mx12M evaluation board, to generate PWM patterns and to clear fault states from the above-mentioned evaluation boards.

Evaluation board

This document is intended for all technical specialists who want to use the Eval-1ED38x0DCT board to evaluate the functionality, performance and features of the Eval-1ED3890Mx12M with 1ED3890MC12M or 1ED3890MU12M gate driver ICs. This evaluation board is intended to be used together with the EiceDRIVER™ 1ED38x0 DCT software under laboratory conditions and only by trained specialists.

The EiceDRIVER™ 1ED38x0 DCT software can also be used independently to configure the features of the Infineon EiceDRIVER™ 1ED-X3 Digital gate driver IC family before exporting it as an XML file, to be used afterwards with any other microcontroller.

Attention: ***This board is intended to be used only with the Eval-1ED3890Mx12M or Eval-1ED3491Mx12M evaluation boards.***

Note: *PCB and auxiliary circuits are NOT optimized for final customer design.*

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Safety precautions

Note: Please note the following warnings regarding the hazards associated with development systems.

Table 1 Safety precautions

	**Caution:** *The evaluation or reference board contains parts and assemblies sensitive to electrostatic discharge (ESD). Electrostatic control precautions are required when installing, testing, servicing or repairing the assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with electrostatic control procedures, refer to the applicable ESD protection handbooks and guidelines.*
	**Caution:** *The evaluation or reference board is shipped with packing materials that need to be removed prior to installation. Failure to remove all packing materials that are unnecessary for system installation may result in overheating or abnormal operating conditions.*

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1 The board at a glance

The Eval-1ED38x0DCT evaluation board was designed as a companion board to the Eval-1ED3890Mx12M evaluation board to be used in setting up and configuring the EiceDRIVER™ 1ED3890MC12M or 1ED3890MU12M gate driver ICs present on the board.

This evaluation board is designed to connect to up to three Eval-1ED3890Mx12M evaluation boards and configure them.

The evaluation board comes preconfigured to be supplied either via a micro-USB cable, or by an external 15 V supply from the ribbon cable of the Eval-1ED3890Mx12M evaluation board.

The EiceDRIVER™ 1ED38x0 DCT software comes with a built-in PWM generator, which enables the Eval-1ED38x0DCT to be used not only for configuring the gate drivers in the Eval-1ED3890Mx12M evaluation board, but also for generating the pulse for switching tests, such as double-pulse testing.

The board has a size of 85 × 85 × 15 mm^3 and is shown in Figure 1.

As the board is specifically designed to be used in conjunction with Eval-1ED3890Mx12M evaluation board, **it is highly recommended to include an EiceDRIVER™ Eval-1ED3890Mx12M in your initial order.**

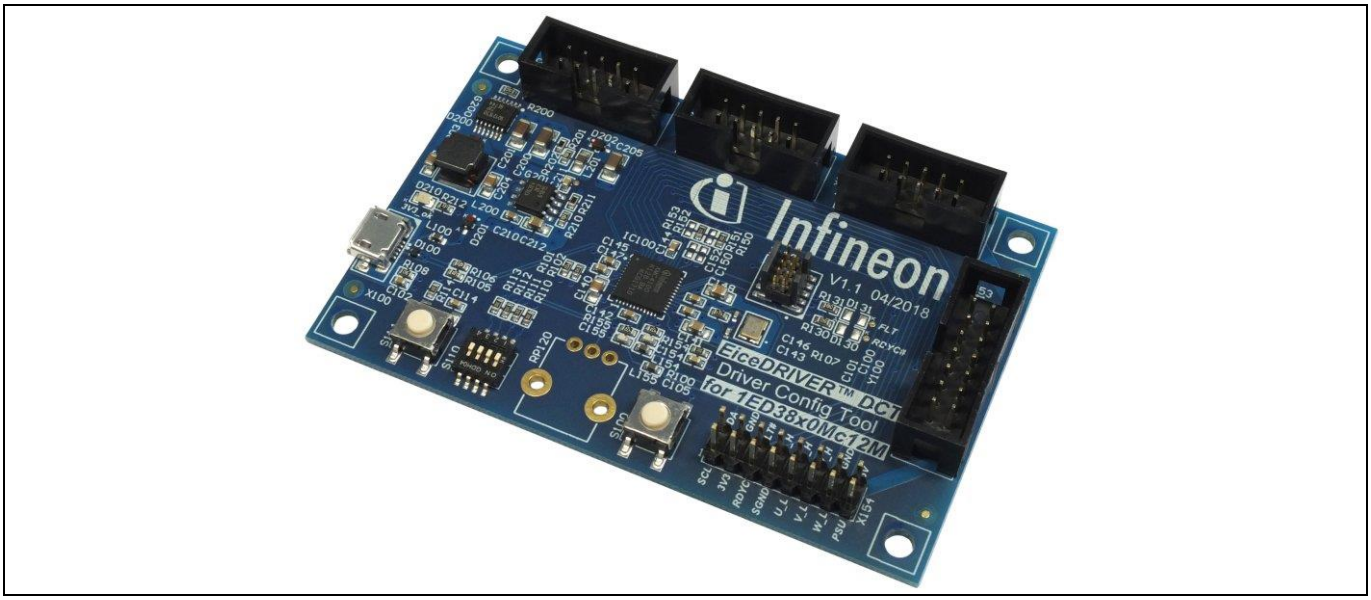

Figure 1 Eval-1ED38x0DCT board

1.1 Scope of supply

The scope of supply includes the evaluation board Eval-1ED38x0DCT.

1.2 Block diagram

Figure 2 shows the board block diagram.

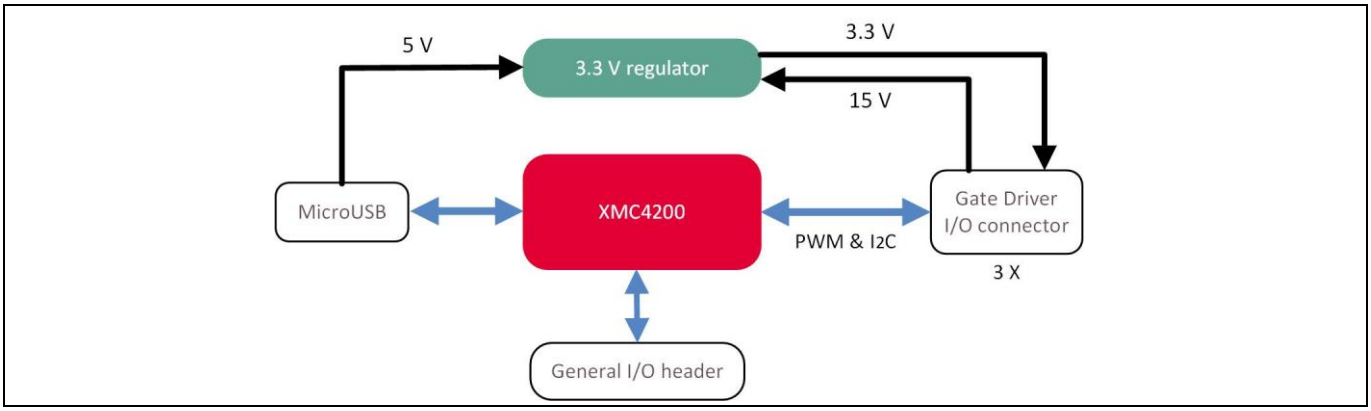

Figure 2 Eval-1ED38x0DCT block diagram

1.3 Main features

The Eval-1ED38x0DCT is designed as a companion board for the Eval-1ED3890Mx12M evaluation board to enable fast configuration, adjustment and evaluation of the EiceDRIVER™ 1ED3890MC12M or 1ED3890MU12M on the board.

It comes with an XMC4200 microcontroller with custom firmware, enabling fast and easy evalution of the Eval-1ED3890Mx12M evaluation board, when used with the EiceDRIVER™ 1ED38x0 DCT software.

There is a 3.3 V regulator that provides power to the microcontroller and to the attached Eval-1ED3890Mx12M evaluation board connected via the gate driver I/O connector. The 3.3 V regulator can be supplied either via the 5 V rail in the micro-USB connector or via the 15 V rail in the gate driver I/O connector.

All control signals from the three gate driver I/O connectors are also routed to a general I/O header for future use or custom routing.

1.4 Board parameters and technical data

The absolute maximum ratings are summarized in Table 2.

Table 2 Absolute maximum ratings

Parameter/Pin	Symbol	Conditions/Notes	Value	Unit
I^2C serial clock line	SCL	Referenced to SGND	-0.3 … 4.3	V
I^2C serial data line	SDA	Referenced to SGND	-0.3 … 4.3	V
3.3 V output	3V3	Referenced to SGND	-0.3 … 4.3	V
Gate driver ready state output/ fault-clear input and fault-off input	RDYC	Gate driver input/output digital signal. Referenced to SGND	-0.3 … 4.3	V
Gate driver fault output/ fault-off input	FLT#	Gate driver input/output digital signal. Referenced to SGND	-0.3 … 4.3	V
Phase U low-side gate driver input	U_L	Referenced to SGND	-0.3 … 4.3	V
Phase U high-side gate driver input	U_H	Referenced to SGND	-0.3 … 4.3	V
Phase V low-side gate driver input	V_L	Referenced to SGND	-0.3 … 4.3	V
Phase V high-side gate driver input	V_H	Referenced to SGND	-0.3 … 4.3	V
Phase W low-side gate driver input	W_L	Referenced to SGND	-0.3 … 4.3	V
Phase W high-side gate driver input	W_H	Referenced to SGND	-0.3 … 4.3	V

Parameter/Pin	Symbol	Conditions/Notes	Value	Unit
15 V input	15V	Referenced to GND	-0.3 … 20	V
Power supply reference PWM	PSU	Referenced to GND	-0.3 … 4.3	V

The recommended operating conditions are summarized in Table 3.

Table 3 Recommended operating conditions

Parameter/Pin	Symbol	Conditions/Notes	Value			Unit
			Min.	Typ.	Max.	
I^2C serial clock line	SCL	Referenced to SGND	-0.1	-	3.4	V
I^2C serial data line	SDA	Referenced to SGND	-0.1	-	3.4	V
3.3 V output	3V3	Referenced to SGND	3.2	3.3	3.4	V
Gate driver ready state output/ fault-clear input and fault-off input	RDYC	Gate driver input/output digital signal. Referenced to SGND	-0.1	-	3.5	V
Gate driver fault output/ fault-off input	FLT#	Gate driver input/output digital signal. Referenced to SGND	-0.1	-	3.5	V
Phase U low-side gate driver input	U_L	Referenced to SGND	-0.1	-	3.5	V
Phase U high-side gate driver input	U_H	Referenced to SGND	-0.1	-	3.5	V
Phase V low-side gate driver input	V_L	Referenced to SGND	-0.1	-	3.5	V
Phase V high-side gate driver input	V_H	Referenced to SGND	-0.1	-	3.5	V
Phase W low-side gate driver input	W_L	Referenced to SGND	-0.1	-	3.5	V
Phase W high-side gate driver input	W_H	Referenced to SGND	-0.1	-	3.5	V
15 V input	15V	Referenced to GND	14.5	15	15.5	V
Power supply reference PWM	PSU	Referenced to GND	-0.1	-	3.5	V

2 System and functional description

This board is specifically designed to be used in conjunction with EiceDRIVER™ Eval-1ED3890Mx12M gate driver evaluation board in order to aid the configuration of all parameters in the 1ED3890MC12M or 1ED3890MU12M gate driver ICs. In the following chapters, it is assumed that the EiceDRIVER™ Eval-1ED3890Mx12M gate driver evaluation board will be used.

2.1 Getting started

The Eval-1ED38x0DCT is designed to be supplied with power either via the micro-USB connector, by providing +3.3 V to the 3V3 pin or by providing +15 V to the 15 V pin. It is recommended to either use the micro-USB or the 15 V pin for power supply.

Attention: ***Before connecting the Eval-1ED38x0DCT board, please make sure the USB drivers are installed, as described in Chapter 2.1.2***

2.1.1 Prerequisites

- PC with Windows 7 or higher
- USB A to micro-USB cable
- Microsoft™ Windows™ 10 PC

2.1.2 EiceDRIVER™ 1ED38x0 DCT software installation process

The following steps are required in order to install the EiceDRIVER™ 1ED38x0 DCT software. The same process should be used for downloading future software updates.

If the Infineon toolbox is already installed, please jump to step 3.

1. Visit www.infineon.com/toolbox and download the latest version
2. Start the toolbox
3. Search for "EiceDRIVER 1ED38x0 DCT"
4. Install the software
5. Locate the installation directory and find the USB device drivers
6. Install the XMC USB drivers

2.1.3 Powering up and connection sequence

Attention: ***Be very carerful when connecting and disconnecting the Eval-1ED38x0DCT board and the Eval-1ED3890Mx12M. This should be done without power being supplied to any of the boards.***

1. Connect the EiceDRIVER™ Eval-1ED38x0DCT to the Eval-1ED3890Mx12M gate driver evaluation board.
2. Power up the the Eval-1ED3890Mx12M as described in the Eval-1ED3890Mx12M board user guide.
3. Connect the Eval-1ED38x0DCT to the computer via micro-USB.
4. Start the EiceDRIVER™ 1ED38x0 DCT software.

2.1.4 EiceDRIVER™ 1ED38x0 DCT quick-start

Note: *For a full description of the software, please see Chapter 3*

The graphical user interface shows a quick-start button when the application detects that an Eval-1ED38x0DCT board has been connected. When you click on it, the application will perform the following steps:

1. Open the USB connection for communication with the Eval-1ED38x0DCT board
2. Initiate the I^2C address configuration of the connected Eval-1ED3890Mx12M evaluation boards based on the previous generated preset
3. Initiate the register configuration of the connected Eval-1ED3890Mx12M evaluation boards based on the previous generated preset
4. Switch the view to hardware mode, show the status tab, and intiate status readout

The application will show notification messages in the status bar informing you about success or failure.

As an option, follow these steps to manually prepare the evaluation board for operation:

1. Switch to Hardware mode > Connect tab
2. Select **Infineon WinUSB Device** device drop-down list
3. Click **Connect**, monitor the status message and firmware version for a successful connection
4. Optional click **Load Config** to select a previously saved configuration
5. Click **Set Addr+Regs** to transfer the register settings

If the configuration is successful, the status indicator of RDYC will switch to green. The application is now ready for additional parameter adjustments, status read-outs and gate driver operation.

3 EiceDRIVER™ 1ED38x0 DCT software

The middle section of the graphical user interface contains the content of the selected application mode. The colored border indicates the current mode. It matches various buttons and menu items to simplify navigation.

To return to a previous application mode page, use the menu item **← Back to previous page**. The application keeps track of page changes to enable a page-back function to the initial start page.

The menu item **About** contains information on application version and a disclaimer page. The disclaimer page also contains a list of previously displayed status messages.

3.1 Start menu

When the software is started with the Eval-1ED38x0DCT board connected to the computer, the screen shown in Figure 3 appears, which is the Start menu. The top of the window, shown in Figure 3-a, allows for easy access to the file menu and the three main configuration modes: guided mode, advanced mode and hardware mode. This allows for easy changing from one mode to the other. If the user would like to go to the previous view, there is also a dedicated button for that.

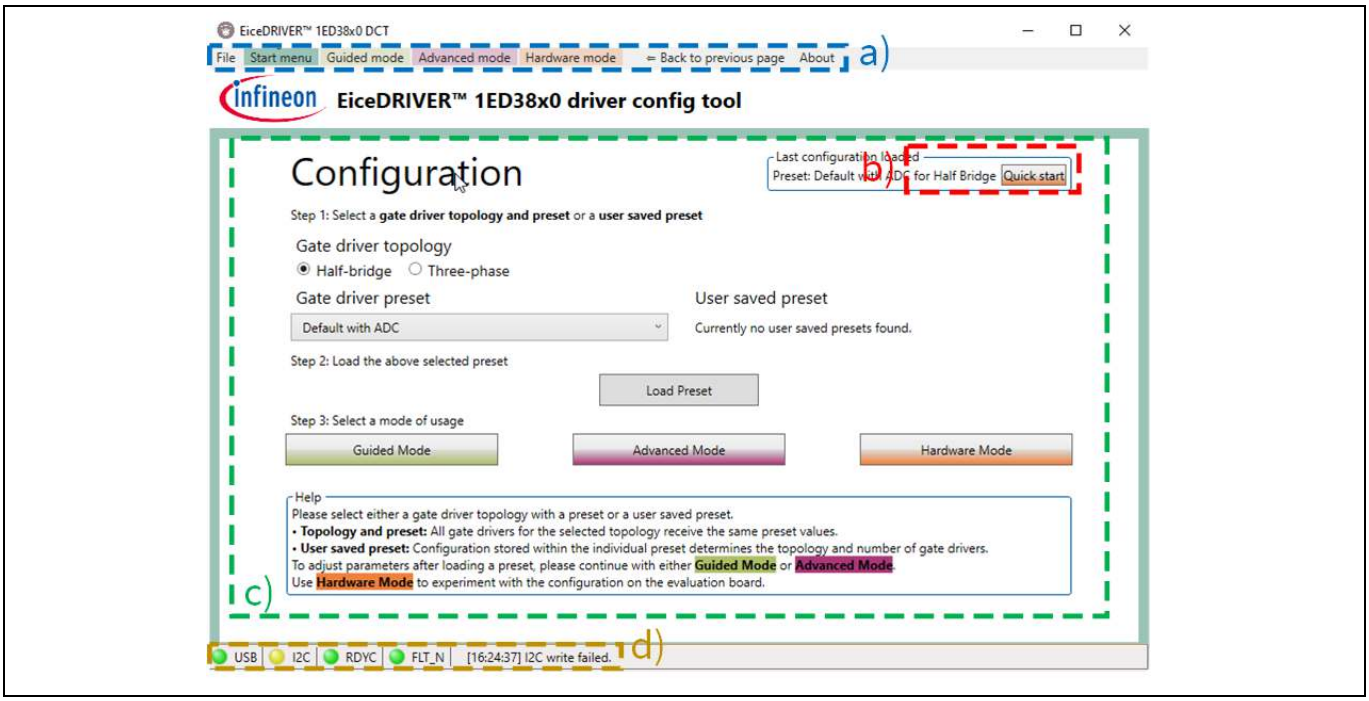

Figure 3 Main window of EiceDRIVER™ 1ED38x0 DCT: a) top menu; b) reload last session configuration; c) main window; d) state signaling and log information

In the middle section of the window, an easy-start mode is proposed in three steps, shown in Figure 3-c. Or, if the software has been previously used, a quick-start button appears that allows the last-used configuration to be loaded, as shown in Figure 3-b. The software comes with a few pre-settings for the board, which is a good starting point that can be altered subsequently. Most of the application content will be displayed in the middle section as well.

At the bottom of the windows, the status of the USB connection, I^2C and the FLT_N and RDYC pins is shown as seen in Figure 3-d. To the right, there is a short log message that presents the status of the activities. Figure 4 shows a detailed view of the state signaling of the EiceDRIVER™ 1ED38x0 DCT software. This contains generic indicators for:

- USB indicator: green: Eval-1ED38x0DCT board connected; red: Eval-1ED38x0DCT board not connected
- I²C indicator: this toggles between green and yellow once I²C related data packages are received via USB
- RDYC/FLT_N gate driver state indicator: green: OK; red: not ready/fault
- Fading text bar: communication feedback on current requests

When you move the mouse pointer over the elements in the state signaling area, tool tips are provided. This is not limited to the color elements, or to the state signaling area, but is valid for the entire program.

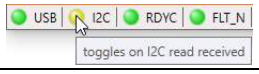

Figure 4 State signaling area

3.2 Guided mode

Select the guided mode by clicking on the tab with the same name. The guided mode offers a detailed, guided parameter adjustment flow for all parameters of the gate driver. In addition, it displays the reference material and information extracted from the user guide to describe the purpose and influence of the parameter. The page consists of the following control elements:

- Drop-down list of available guided steps to access individual parameters directly
- Parameter range progress indicator in both textual and visual form
- Parameter group and title text
- Parameter adjustment control with either address input field or slider and value text field
- Button to quick access to the advance mode, hardware mode and to the register view within the advance mode
- Reference page view

Figure 5 shows the first parameter adjustment view in the guided mode. Here the I²C address of the gate driver is to be adjusted.

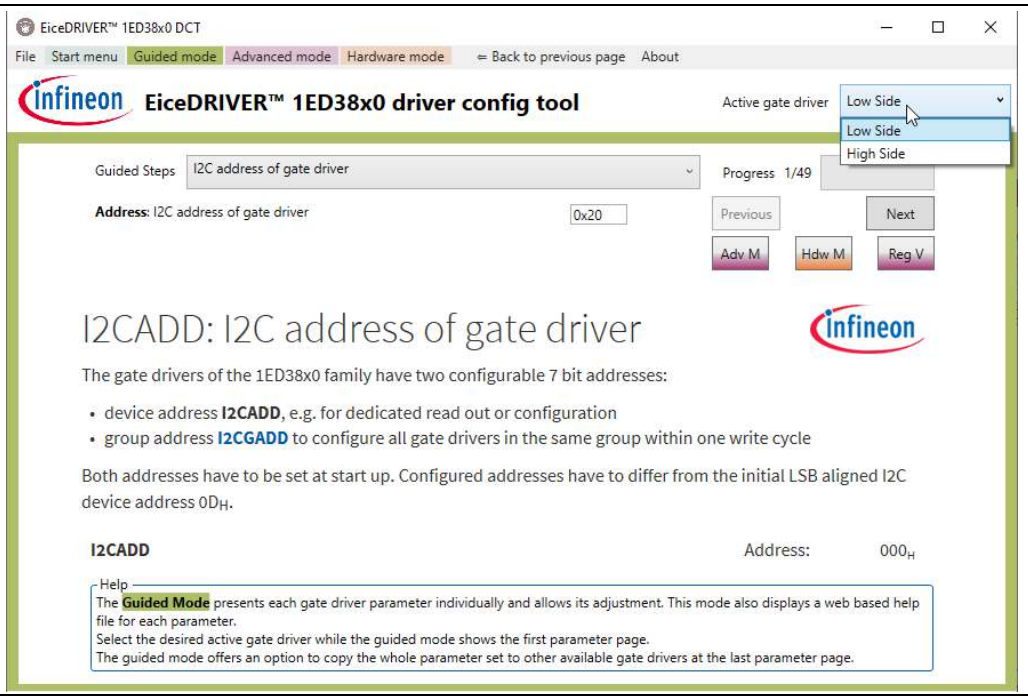

Figure 5 First parameter view in guided mode with active gate driver selection enabled

Figure 6 shows the last parameter view in the guided mode. Here, the behavior of the gate driver input side is adjusted after UVLO. Most importantly, this page presents the user with the option to copy the parameter settings from the active gate driver to the other gate drivers in the selected topology.

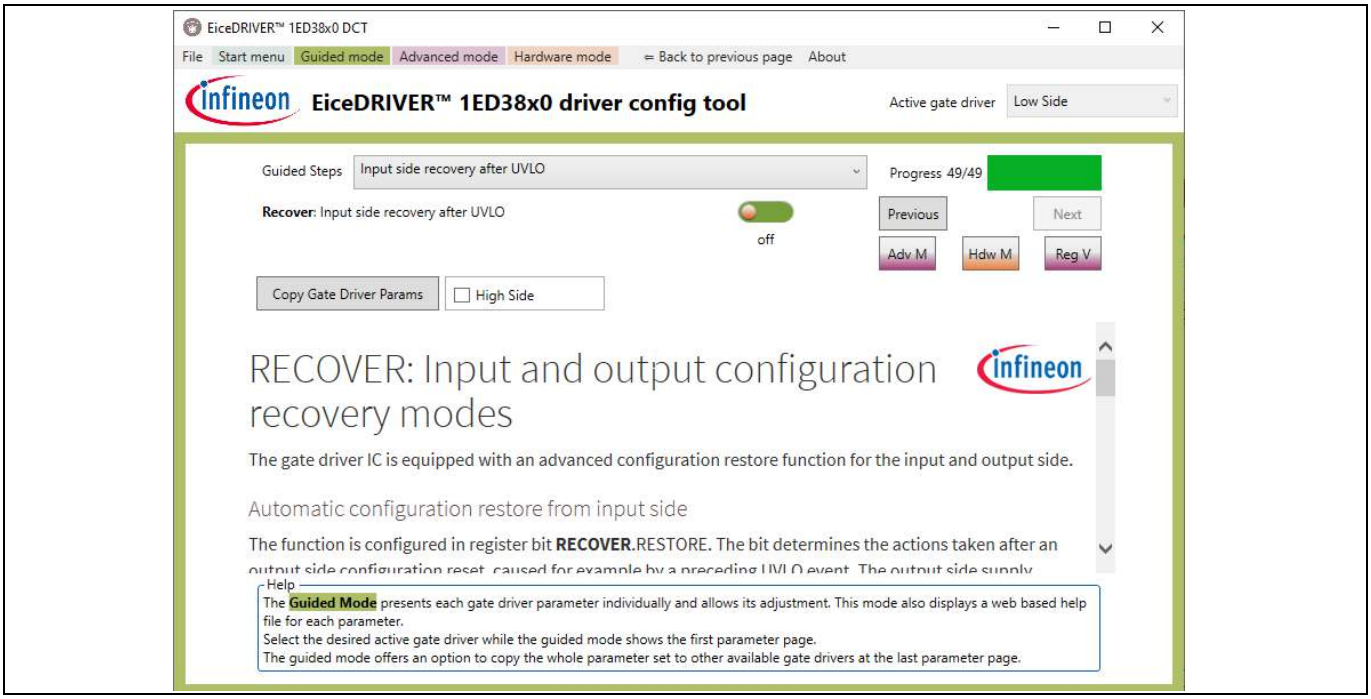

Figure 6 Last parameter view in guided mode

3.3 Advanced mode

The advanced mode offers parameter adjustment for any parameter grouped by a gate driver functional block and a register table. A click on the menu item Advance Mode switches to this page.

3.3.1 Functional blocks in the advance mode

In the advance view, the gate driver parameter settings are grouped by relevant functional blocks:

- Input pin
- Supply
- ADC
- DESAT
- Output
- Fault Off
- CLAMP
- Recover
- Register View

The functional blocks offer sliders and drop-down lists to adjust the settings and write these changes into corresponding register values.

*Note: Click on a parameter name to switch into guided mode for a detailed parameter description. Use the ← **Back to previous page** button to return to the advance mode afterwards.*

Each of the above configuration tabs has various parameter lines that influence one or more bits of the gate driver configuration register. As an example, Figure 7 shows the DESAT configuration tab view. Using different sliders and drop-down menus, different parameters can be adjusted, as shown in Figure 7-a. The page shows the related configuration registers of the functional block on the right side, as shown in Figure 7-b. When a change is made, either by using the sliders or the drop-down menus, the application highlights the affected register in Figure 7-b.

A click on the buttons in Figure 7-c triggers a parameter transfer:

- **DT** (device transfer): transfers the changes for active driver
- **GT** (group transfer): transfers the changes to the group of drivers to which the active driver belongs

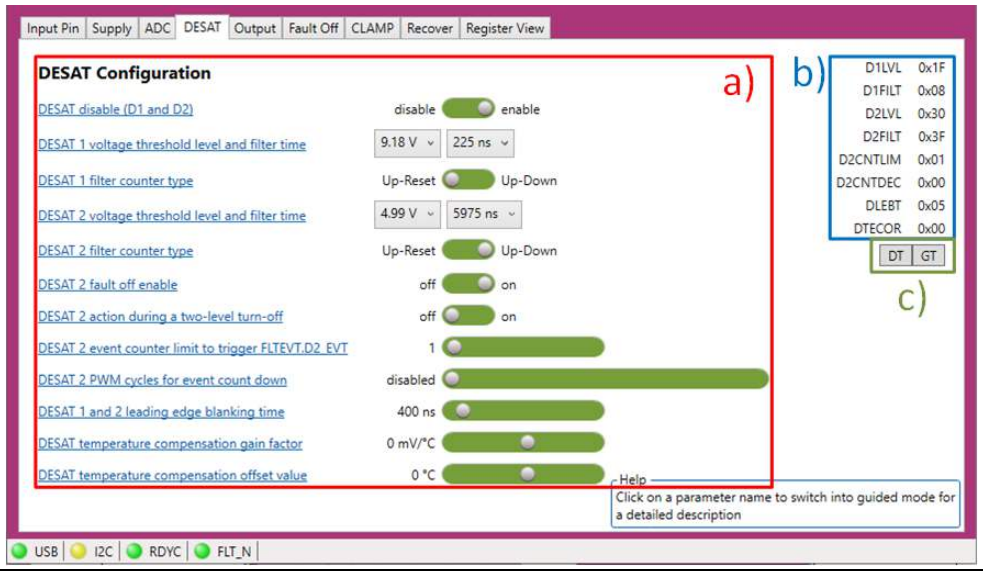

Figure 7 **View of DESAT configuration tab in advance mode: a) adjustable parameters; b) affected registers; c) parameter transfer buttons**

3.3.2 Register view in advance mode

Figure 8 shows the advanced mode register view tab for a half-bridge topology. The register view tab contains the following elements:

- **Register table**: list of configuration and status registers with register address and value for all gate drivers on the evaluation board
- **Register range view**: text diplay of current cell selection of driver and register addresses
- **Load Config**: opens a dialog to select and load an XML register configuration file, such as user-saved preset
- **Save Config**: opens a dialog to name and save the current register table to an XML register configuration file, such as user-saved preset
- **Transfer Config**: intiates a configuration register transfer to the gate drivers using the current cell selection as range
- **Read Config**: initiates a register read from the gate drivers using the current cell selection as range
- **Transfer All**: intiates a complete configuration register transfer to the gate driver highlighted by the current cell selection
- **Real All**: initiates a complete register read from the gate driver highlighted by the current cell selection
- **Group Tranfer**: initiates a complete configuration register transfer to the gate driver I^2C group address highlighted by the current cell selection

- **Hardware Mode**: switches to the hardware mode

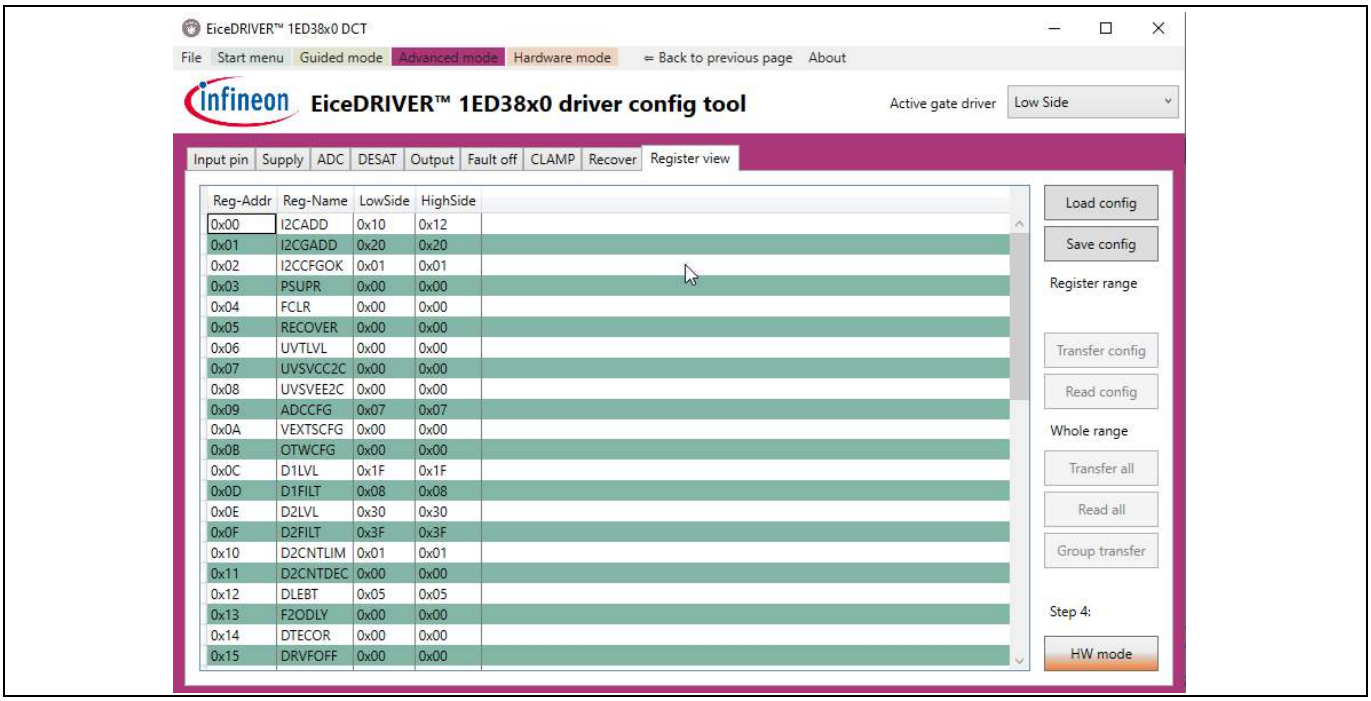

Figure 8 Register view tab for half-bridge topology

3.4 Hardware mode

The hardware mode can be selected from the top menu of the EiceDRIVER™ 1ED38x0 DCT software. Here the selection can be made between two tabs: **Connect** and **Status**.

3.4.1 Connect view

The connect tab, shown in Figure 9, contains the following items and functions:

- **USB device drop-down list**: Select the Infineon WinUSB device entry from the listed devices
- **Firmware version**: displayed below the USB device drop-down list after successful connection
- **Connect/Disconnect**: connects to the selected USB device or disconnects from the currently connected evaluation board
- **Load Preset**: opens a dialog to select and load an XML register configuration file (user-saved preset)
- **Set Addr+Regs**: sets the I²C addresses and register configuration for the gate drivers from the configuration memory of this application
- **XMC Reset**: performs a software reset at the microcontroller on the evaluation board
- Active gate driver address configuration: manual mode to configure the target device and group I²C address; click **Set Addresses** to transfer changes to the evaluation board
- **Read Config**: performs a device-parameter read with the above-specified I²C target device address. If the operation succeeds, the retrieved parameters will be stored in the configuration memory of this application for the active gate driver. This function can be used to recover the gate driver states for all gate drivers after a reset of the microcontroller.
- I²C bus baud rate configuration: Select a suitable baud rate using the slider and click on **Set baud rate** to set it for the I²C communication between microcontroller and gate driver ICs.

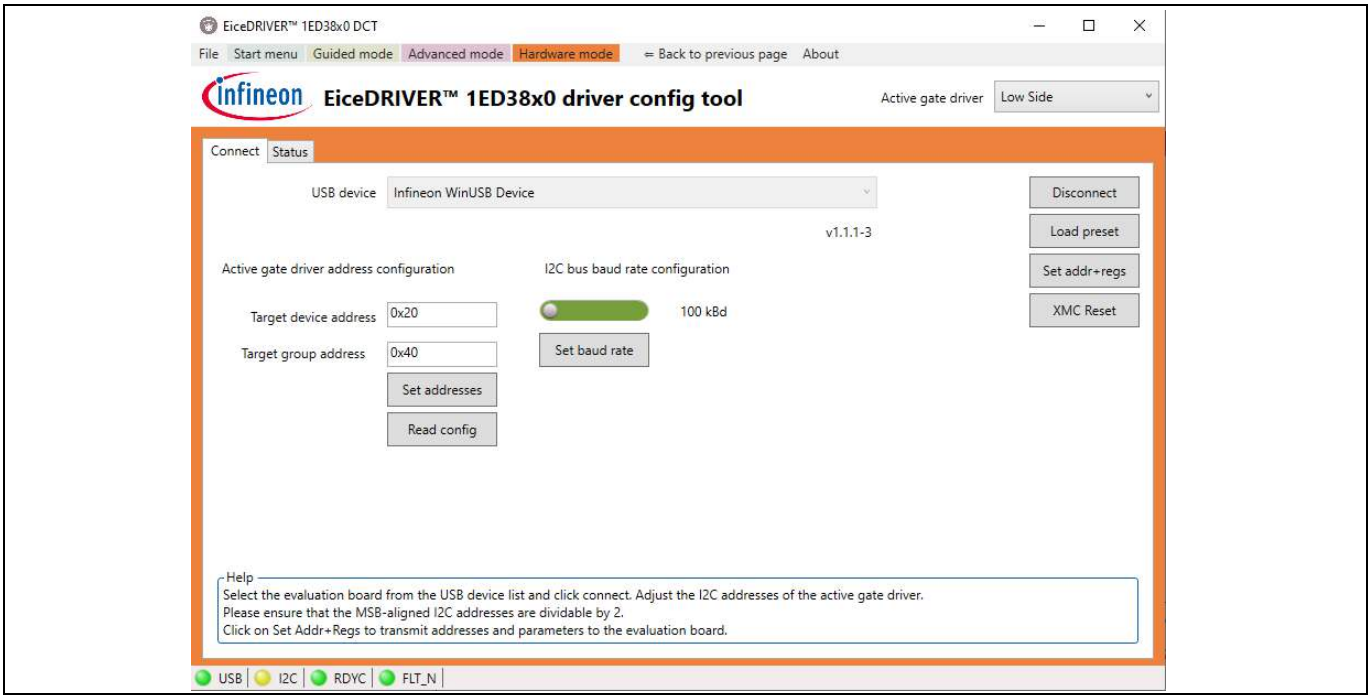

Figure 9 Connect tab with evaluation board connected

3.4.2 Status view

The status tab, displayed in Figure 10, shows the state of the active gate driver, including status bits and ADC measurement values. It also offers access to a simple PWM generator for evaluating the evaluation boards.

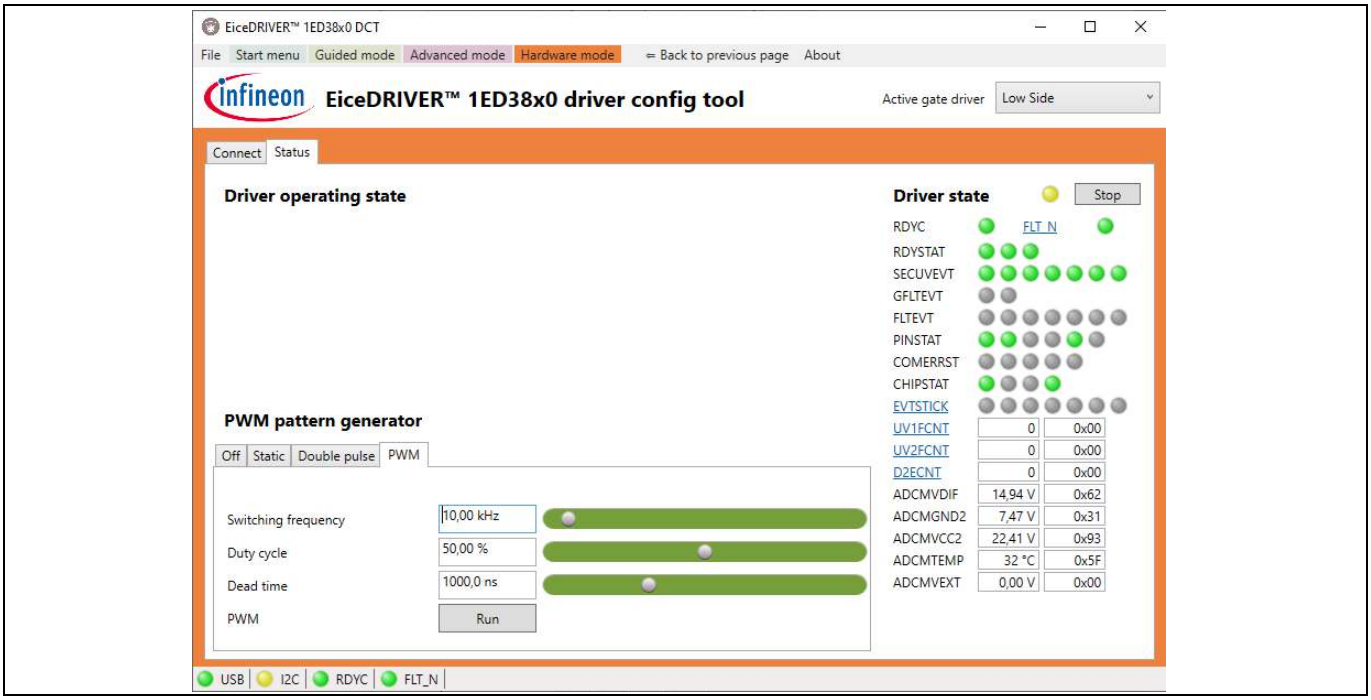

Figure 10 Status tab with PWM pattern generator

3.4.2.1 Driver state

The display of the driver state will be updated in the following situations:

- Change of the RDYC and FLT_N states
- Manual request
- Continuous update

To change between manual and continuous updates, the indicator next to the driver state can be used. If yellow, the continuous update is enabled, if greyed, manual requests are selected. When continuous update is selected, the STOP/START button will appear next to the indicator to start & stop the continuous update. If the manual update mode is enabled, the button text will change to request, and the fields will be updated each time the request button is clicked.

Note: When hovering with the pointer over any of the individual status registers name for one second, a short reference snippet is displayed about that specific status register

Note: All the status registers colored with blue and underlined are clickable in order to reset/re-initialize.

Note: When the device output is disabled due to a fault (FLT_N=red), the FLT_N pin can be clicked to reset the logic and clear the fault. This triggers a fault-clear cycle in which RDYC pin is pulled low for at least 10 µs.

Note: If the gate driver seems to be stuck in fault (FLT_N=red) despite being cleared, please check that the fault condition is not present anymore. The gate driver could go back to fault mode immediately after being cleared if the condition is still present.

3.4.2.2 PWM pattern generator

The built-in pattern generator is designed to make the evaluation of the Eval-1ED3890Mx12M easier. It can generate static turn-on or turn-off of the connected gate drivers' outputs, adjustable frequency, duty cycle and dead-time PWM patterns, or can generate double-pulse testing PWM patterns.

- **Off mode**: the default state. Here both outputs are turned off.
- **Static mode**: generates a static output on one or both channels of the half-bridge:
    - **Output HS indicator**: toggles the high-side gate driver outputs
    - **Output LS indicator**: toggles the low-side gate driver outputs
- **Double-pulse mode**: generates a double-pulse test pattern
    - **Channel select toggle**: toggles the active channel between low-side and high-side. The unselected side will be kept in an off-state.
    - **Inverted channel**: can be used to toggle between non-inverting (red) and inverting (green) PWM pattern.
    - **On time pulse A**: defines the time duration for the first pulse of the double-pulse pattern
    - **Pause time between A and B**: defines the time break, also known as free-wheeling diode time, between the two pulses of the double-pulse test.
    - **On time pulse B**: defines the time duration for the second pulse of the double-pulse pattern
    - **Trigger**: triggers a double-pulse test pattern
- **PWM mode**: generates a PWM pattern for the half-bridge
    - **Switching frequency**: switching frequency of the half-bridge

- **Duty cycle**: the duty cycle between the high-side and the low-side
- **Dead time**: the dead time used between the high-side and low-side PWM input patterns
- **PWM Run/Stop**: starts and stops the PWM pattern generator

Attention: ***A fault indicated by the gate driver will result in the automated turn-off of the PWM pattern generator and its return to Off mode. The graphical interface might not always update the control elements accordingly. In this case, please select the Off mode before trying to re-enable the PWM pattern generator. Please clear the fault, and reconfigure the desired PWM generator again.***

4 System design

The Eval-1ED38x0DCT board is designed as a companion board for the Eval-1ED3890Mx12M evaluation board. The board is only intended to be used for the evaluation of the said evaluation board, and is not optimized for any other use.

4.1 Schematics

The schematics of the evaluation board are separated into the following parts:

- Microcontroller and surrounding circuits (Figure 11)
- Power supply section (Figure 12)

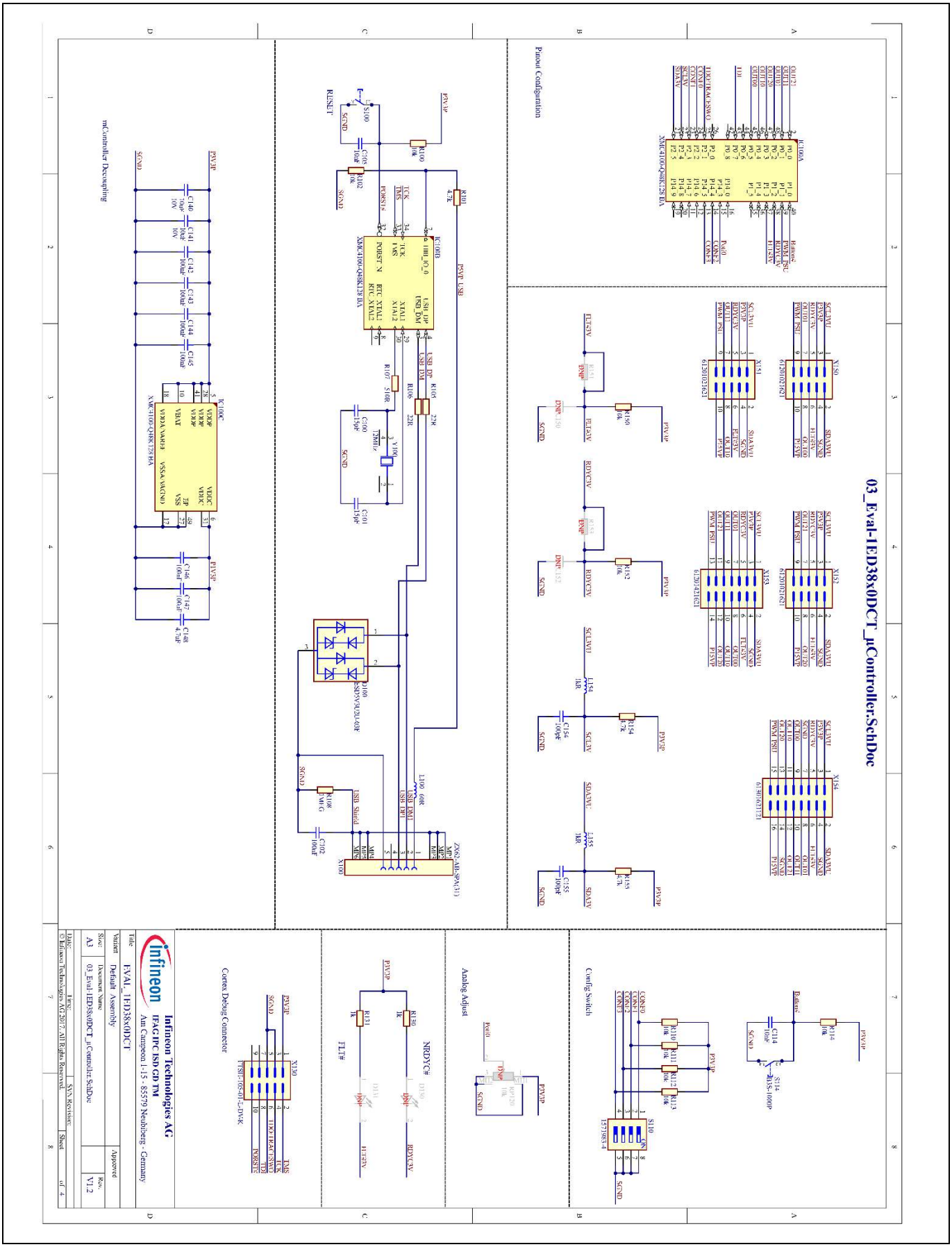

Figure 11 Schematic of microcontroller IC and surrounding circuit

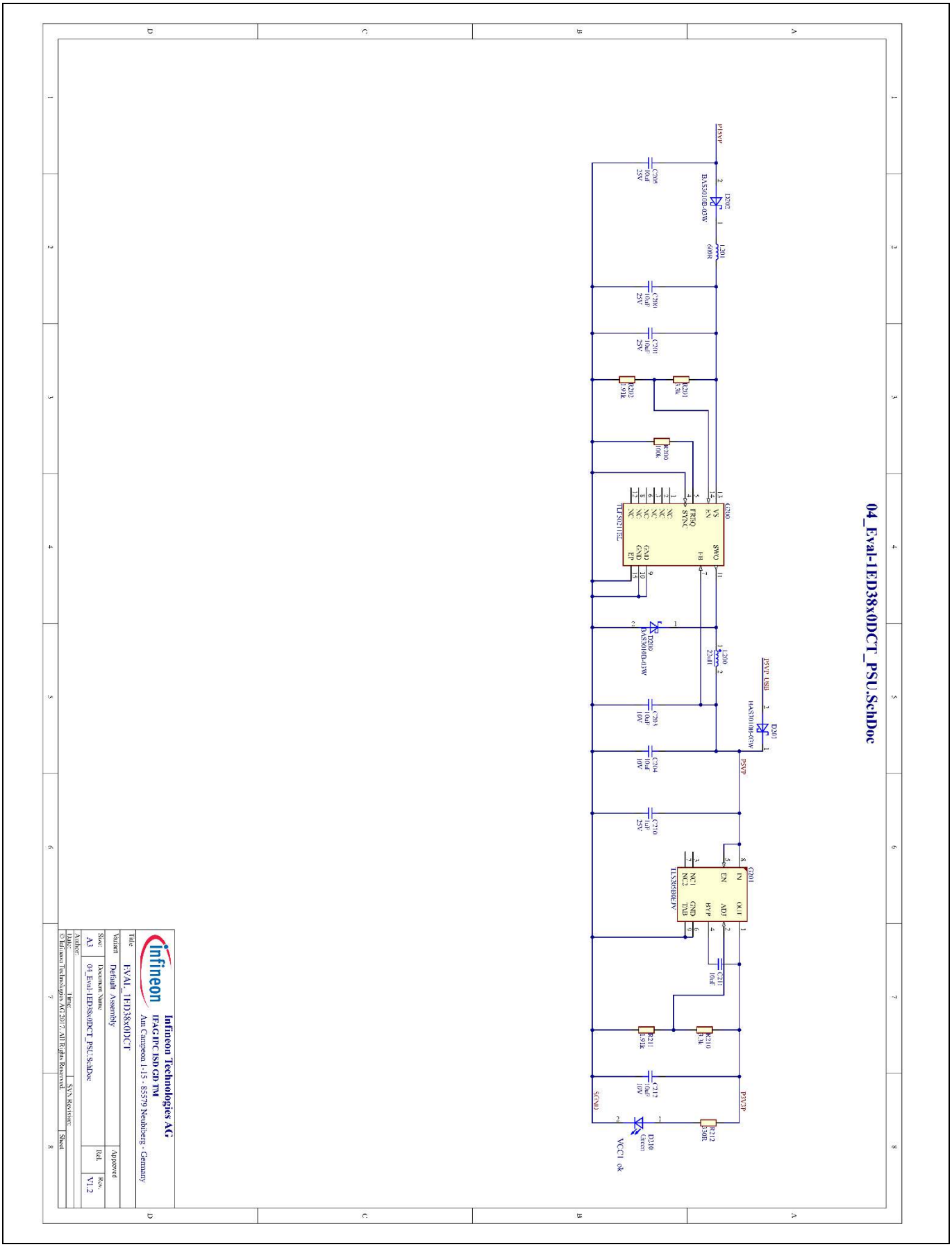

Figure 12 Schematic of power supply section

4.2 Connector details

The following tables explain the connectors on the board.

Table 4 Connector X130 (XMC4000™ family JTAG programmer)

Pin	Signal name	Description	Ground reference
1	3V3	3.3V power rail	Referenced to SGND
2	TMS	JTAG test mode select pin	Referenced to SGND
3	SGND	Ground reference	
4	TCK	JTAG test clock pin	Referenced to SGND
5	SGND	Ground reference	
6	TDO	JTAG test data out pin	Referenced to SGND
7	-	Not connected	
8	TDI	JTAG test data in pin	Referenced to SGND
9	-	Not connected	
10	PORTST#	JTAG inverted test reset pin	Referenced to SGND

Table 5 Connectors X150 (U-phase), X151(V-phase), X152 (W-phase)

Pin	Signal name	Description	Ground reference
1	I^2C SCL	I^2C clock line	Referenced to SGND
2	I^2C SDA	I^2C data line	Referenced to SGND
3	3V3	3.3 V output from onboard regulator	Referenced to SGND
4	SGND	Ground reference	-
5	RDYC	Gate drivers RDYC connection	Referenced to SGND
6	FLT#	Gate drivers FLT# connection	Referenced to SGND
7	HS	High-side PWM signal for specific phase	Referenced to SGND
8	LS	Low-side PWM signal for specific phase	Referenced to SGND
9	PWM_PSU	Reserved for future use	Referenced to SGND
10	15V	15 V input for onboard regulator	Referenced to SGND

Table 6 Connector X153

Pin	Signal name	Description	Ground reference
1	SCL	I^2C clock line	Referenced to SGND
2	SDA	I^2C data line	Referenced to SGND
3	3V3	3.3 V output from onboard regulator	Referenced to SGND
4	SGND	Ground reference	-
5	RDYC	Gate drivers RDYC connection	Referenced to SGND
6	FLT#	Gate drivers FLT# connection	Referenced to SGND
7	U_H	U-phase high-side (conn. 150-7)	Referenced to SGND
8	U_L	U-phase low-side (conn. 150-8)	Referenced to SGND
9	V_H	V-phase high-side (conn. 151-7)	Referenced to SGND

Pin	Signal name	Description	Ground reference
10	V_L	V-phase low-side (conn. 151-8)	Referenced to SGND
11	W_H	W-phase high-side (conn. 152-7)	Referenced to SGND
12	W_L	W-phase low-side (conn. 152-8)	Referenced to SGND
13	PWM_PSU	Reserved for future use	Referenced to SGND
14	15V	15 V input for onboard regulator	Referenced to SGND

Table 7 Connector X154

Pin	Signal marking	Description	Ground reference
1	SCL	I^2C clock line	Referenced to SGND
2	SDA	I^2C data line	Referenced to SGND
3	3V3	3.3 V output from onboard regulator	Referenced to SGND
4	SGND	Ground reference	-
5	RDYC	Gate drivers RDYC connection	Referenced to SGND
6	FLT#	Gate drivers FLT# connection	Referenced to SGND
7	SGND	Ground reference	-
8	U_H	U-phase high-side (conn. 150-7)	Referenced to SGND
9	U_L	U-phase low-side (conn. 150-8)	Referenced to SGND
10	V_H	V-phase high-side (conn. 151-7)	Referenced to SGND
11	V_L	V-phase low-side (conn. 151-8)	Referenced to SGND
12	W_H	W-phase high-side (conn. 152-7)	Referenced to SGND
13	W_L	W-phase low-side (conn. 152-8)	Referenced to SGND
14	SGND	Ground reference	-
15	PWM_PSU	Reserved for future use	Referenced to SGND
16	15V	15 V input for onboard regulator	Referenced to SGND

5 References and appendices

5.1 References

[1] Datasheet of Infineon 1ED3890MC12M

[2] Datasheet of Infineon 1ED3890MU12M

[3] Reference manual of Infineon 1ED3890MC12M

[4] User guide of EiceDRIVER™ EVAL-1ED38x0DCT

[5] 1ED38xx X3 Digital configuration software

5.2 Ordering information

Base part number	Package	Standard pack		Orderable part number
		Form	Quantity	
Eval-1ED38x0DCT	-	Boxed	1	EVAL1ED38X0DCTTOBO1

Revision history

Document version	Date of release	Description of changes
V 1.0	31/05/2021	First version
V1.1	15/06/2021	Update software name

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