

Getting started with the STEVAL-DPSG474 digital power supply control kit

Introduction

The **STEVAL-DPSG474** is a digital power supply control kit. It consists of a main board, based on the **STM32G474RE** microcontroller from the STM32G4 family, and an adapter board, which provides different communication interfaces and allows programming the microcontroller through a standard 20-pin JTAG connector.

The **STM32G474RE** microcontroller includes the high-performance Arm® Cortex® M4 32-bit RISC core operating at up to 170 MHz frequency, a floating point unit (FPU), a full set of DSP (digital signal processing) instructions, and high-speed embedded memories (512 Kbytes of flash memory and 128 Kbytes of SRAM).

The device embeds peripherals that allow the mathematical/arithmetic function acceleration (CORDIC for trigonometric functions and FMAC unit for filter functions).

The MCU offers five fast 12-bit ADCs (5 Msps), seven ultra-fast comparators, six operational amplifiers, seven DAC channels (three external and four internal), a low-power RTC, 32-bit timers, three timers dedicated to motor control, seven general-purpose 16-bit timers, one 16-bit low-power timer, and the high-resolution timer (HRTIM) with 184 ps resolution, specifically designed to drive power conversion systems.

The main board embeds a standard 64-pin DIN 41612 connector for connection with a power board. It provides all the PWM control signals, sensing networks, and protection features needed for a wide range of digital power supply applications.

An external 5 V supply voltage can supply the board either through a dedicated connector or through the main connector. The adapter board features a configurable user communication (SMBus, CAN, or RS-232) with two DB9 connectors and the appropriate transceiver ICs, a standard STDC14 14-pin connector, which provides the SWD interface for debugging and USART communication for user interface (UI), and the standard JTAG connector for programming.

The board also includes a reset button and a termination resistance between the CAN lines.

You can easily connect the **STEVAL-DPSG474** to another control board via opto-coupled serial communication and dedicated connectors.

Figure 1. STEVAL-DPSG474 control board

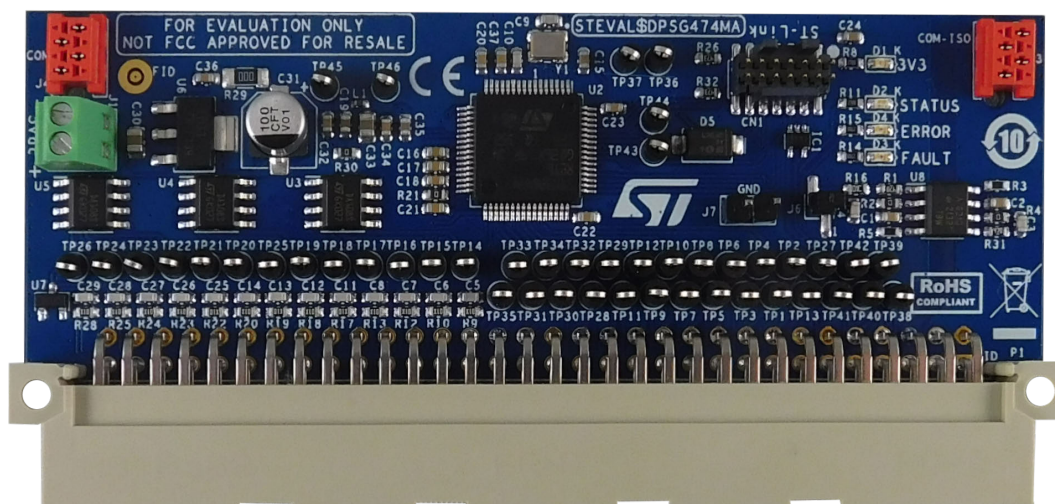
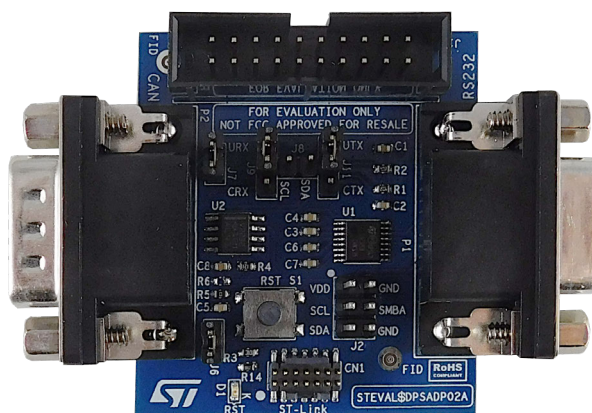


Figure 2. STEVAL-DPSG474 adapter board



1 Features

- Control board for digital SMPS (PFC converters, HF isolating DC-DC converters, DC-AC inverters) based on the [STM32G474RE](#) microcontroller:
 - High-resolution timer (HRTIM) for D-SMPS applications
 - Filter math accelerator unit (FMAC) to perform arithmetic operations on vectors
 - Coprocessor (CORDIC) to provide hardware acceleration of trigonometric functions
- 64-pin DIN 41612 connector for D-SMPS modular approach
- STDC14 programming connector
- Opto-coupled serial communication for board-to-board communication
- RC filters for analog inputs
- Protection of the microcontroller analog lines with diode arrays
- ESD protection on SWD and COM lines
- Adapter board provided for programming and user communication (USART, CAN, SMBus)
- Supply voltage: 5 V
- Embedded 5 V/3.3 V voltage regulator
- Dedicated test points for debugging
- LED signaling for power-on, faults, errors, and general purpose
- RoHS compliant

2 Overview

The **STEVAL-DPSG474** has been specifically designed to control digital-based power converters (DSMPS) such as PFC converters, resonant converters, and HF isolating DC-DC converters in general. It interfaces with the power board using a standard 64-pin DIN 41612 connector, which provides control signals, ADC channels, COMP I/O, GPIOs, and the communication features needed to implement advanced control techniques for a wide range of DSMPS applications.

The control board embeds an **STM32G474RE** microcontroller with a high-resolution timer (HRTIM), which guarantees a fine control capability, specially for high frequency and resonant converters.

Figure 3. STEVAL-DPSG474 control board: main components

1. U1: STM32G474RE 32-bit microcontroller
2. U2: DSMPS standard 64-pin connector for digital power applications
3. U3: STDC14 connector to program and/or debug applications via ST-LINKV3 or to connect the adapter board
4. U4: Supply connector to provide an external 5 V
5. U5: LDO to regulate a 3.3 V to supply MCU
6. U6-U7: UART iso-connectors to connect another control board
7. U8: Test points to debug the user application

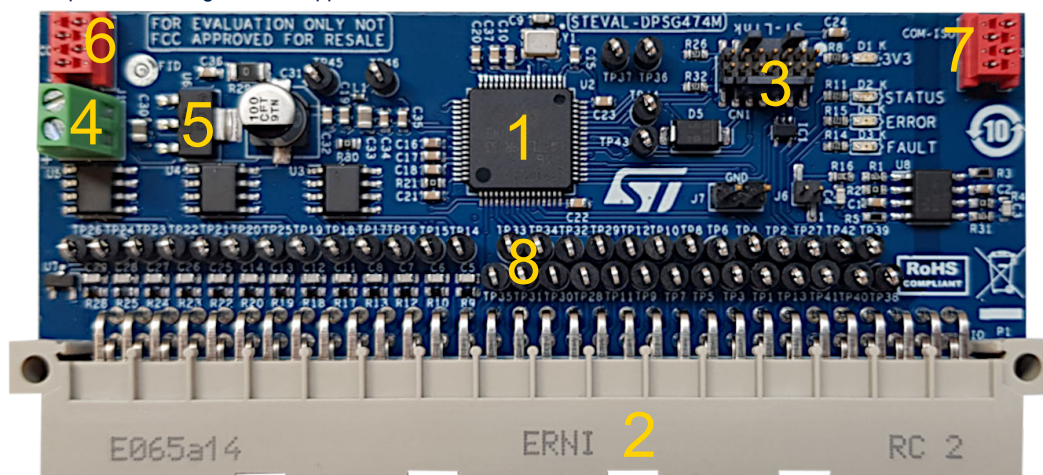
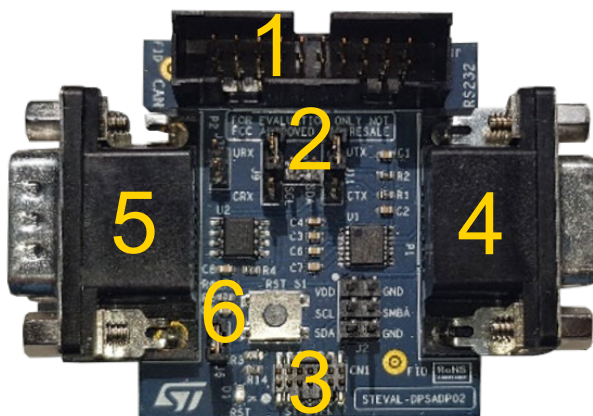


Figure 4. STEVAL-DPSG474 adapter board: main components

1. U1: JTAG connector
2. U2: jumpers to configure the user communication
3. U3: STDC14 connector to program and/or connect the adapter board
4. U4: RS-232 connector
5. U5: CAN connector
6. U6: reset button



2.1 DSMPS connector

The DSMPS connector is a 64-pin ST standard connector adopted in several power conversion evaluation kits (for example, [STEVAL-DPSLLCK1](#), [STEVAL-DPSTPFC1](#), [STEVAL-LLL009V1](#), etc.), which allows an easy control board connection and a fast microcontroller change. Thanks to this modular approach, you can use the same control board for different applications, or change the microcontroller to evaluate the performances of the latest ST products.

Table 1. DSMPS connector V 1.7 pinout and related MCU AF

DSMPS connector function	DIN 41612 pin	MCU pin	STM32G474RE alternate function
VDD_iso	A1	-	-
GND_iso	B1	-	-
UART_TX_iso	A2	PB6	USART1_TX
UART_RX_iso	B2	PB7	USART1_RX
N.C.	A3	-	-
N.C.	B3	-	-
CAN_1_TX/SPI_NSS	A4	PA15	SPI1_NSS/SPI3_NSS/FDCAN3_TX
CAN_1_RX/SPI_SCK	B4	PB3	SPI1_SCK/FDCAN3_RX
SMBus_SCL/UI_USART_RX/CAN_2_RX	A5	PB8-BOOT0	FDCAN1_RX/I2C1_SCL/USART3_RX
SMBus_SMBA/SPI_MOSI/EEV_4	B5	PB5	I2C1_SMBA/SPI1_MOSI/HRTIM_EEV6
SMBus_SDA/UI_USART_TX/CAN_2_TX	A6	PB9	FDCAN1_TX/I2C1_SDA/USART3_TX
GND	B6	VSS	-
+5V	A7	-	-
+3.3V	B7	VDD, VBAT	-
FAULT_1	A8	PC10	HRTIM_FLT6
GPIO_1/GP_PWM_1	B8	PC13	GPIO/TIM1_CH1N
PWM_1	A9	PA8	HRTIM_CHA1/TIM1_CH1
PWM_2	B9	PA9	HRTIM_CHA2/TIM1_CH2
PWM_3	A10	PA10	HRTIM_CHB1/TIM1_CH3
PWM_4	B10	PA11	HRTIM_CHB2/TIM1_CH4/TIM1_CH1N
PWM_5	A11	PB12	HRTIM_CHC1
PWM_6	B11	PB13	HRTIM_CHC2/TIM1_CH1N
PWM_7	A12	PB14	HRTIM_CHD1/TIM15_CH1/TIM1_CH2N
PWM_8	B12	PB15	HRTIM_CHD2/TIM15_CH2/TIM15_CH1N/ TIM1_CH3N
PWM_9	A13	PC8	HRTIM_CHE1/TIM3_CH3/TIM8_CH3
PWM_10	B13	PC9	HRTIM_CHE2/TIM3_CH4/TIM8_CH4
PWM_11	A14	PC6	HRTIM_CHF1/TIM8_CH1/TIM3_CH1
PWM_12	B14	PC7	HRTIM_CHF2/TIM8_CH2/TIM3_CH2
GPIO_2/COMP_2_OUT/GP_PWM_2	A15	PB1	COMP4_OUT/TIM3_CH4
GPIO_3/COMP_1_OUT/FAULT_2	B15	PA12	HRTIM_FLT1/COMP2_OUT
GPIO_4/EEV_1	A16	PC12	HRTIM_EEV1
GND	B16	VSS	-
GPIO_5/DAC_1	A17	PA4	DAC1_OUT1
GPIO_6/DAC_2	B17	PA5	DAC1_OUT2

DSMPS connector function	DIN 41612 pin	MCU pin	STM32G474RE alternate function
GPIO_7/DAC_3/OP-AMP_1_OUT	A18	PA6	DAC2_OUT1/OPAMP2_VOUT
GPIO_8/EEV_2	B18	PC11	HRTIM_EEV2
GPIO_9/EEV_3/SPI_MISO	A19	PB4	HRTIM_EEV7/SPI1_MISO
GPIO_10	B19	PC14	-
ADC_1/DIFF_ADC_1+	A20	PA0	ADC12_IN1/COMP1_INM/COMP3_INP
A_VDD	B20	VDDA	-
ADC_2/DIFF_ADC_1-/OP-AMP_2+	A21	PA1	ADC12_IN2/OPAMP1-3_VINP
A_GND	B21-B32	VSSA	-
ADC_3/DIFF_ADC_2+/OP-AMP_2_OUT/ COMP_1_INM	A22	PA2	ADC1_IN3/COMP2_INM/OPAMP1_VOUT
ADC_4/DIFF_ADC_2-/OP-AMP_2-	A23	PA3	ADC1_IN4/OPAMP1_VINM
ADC_5	A24	PC4	ADC2_IN5
ADC_6/OP-AMP_1-	A25	PC5	ADC2_IN11/OPAMP2_VINM/OPAMP1_VINM
COMP_2_INP/ADC_12/OP-AMP_1+	A26	PB0	COMP4_INP/ADC3_IN12/ADC1_IN15/ OPAMP2-3_VINP
ADC_7/COMP_2_INM	A27	PB2	ADC2_IN12/COMP4_INM/COMP3_INP
ADC_8/COMP_4_INM	A28	PC0	ADC12_IN6/COMP3_INM
ADC_9/COMP_4_INP	A29	PC1	ADC12_IN7/COMP3_INP
ADC_10/COMP_4_OUT	A30	PC2	ADC12_IN8/COMP3_OUT
COMP_1_INP/ADC_11	A31	PA7	COMP2_INP/ADC2_IN4
COMP_3_INP	A32	PB11	COMP6_INP

2.2

STDC14 connector

The CN1 connector can be used either to connect a standard ST-LINKV3 dongle, which allows programming the microcontroller and debugging the user application using an SWD connection. It also allows connecting the adapter board included in the [STEVAL-DPSG474](#) kit.

Table 2. CN1 connector pinout

STD14 pin number	Function
1	N.C.
2	N.C.
3	3.3V
4	SWDIO
5	GND
6	SWCLK
7	GND
8	N.C.
9	N.C.
10	I2C1_SMBA
11	GND
12	NRST
13	FDCAN1_RX/I2C1_SCL/USART3_RX
14	FDCAN1_TX/I2C1_SDA/USART3_TX

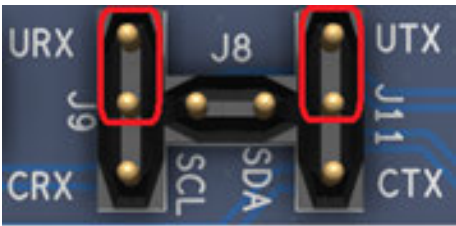
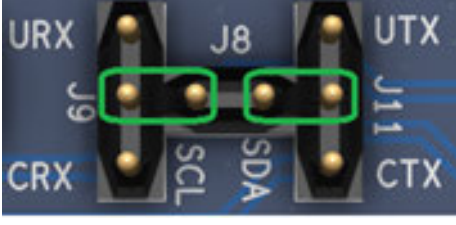
2.3 Adapter board

The adapter board allows extending the communication interfaces or using a standard 20-pin JTAG dongle to program the MCU or debug the user application.

You can configure the MCU communication interface (USART3) in UART, CAN, or SMBUS according to the jumper configuration (J9 and J11). An on-board RS-232 and a CAN transceiver provides the corresponding outputs on P1 (DB9 female) and P2 (DB9 male) connectors, respectively.

The SMBUS connection is available on the J2 connector. A reset button is also present on the board.

Table 3. Adapter jumper configurations

Function	Configuration
UART	
CAN	
SMBUS	

2.4 Isolated serial communication

The control board also features an isolated bidirectional UART communication, which is connected to the MCU USART1 peripheral.

Tx and Rx signals pass through a digital optocoupler (U8), before being available on the DSMP5 connector and the J3 connector.

The digital optocoupler needs to be supplied on the secondary side by using the VDD_iso and GND_iso pins on the main 64-pin connector. You can also directly connect two control boards, referred to two isolated supply voltages, by connecting the J3 connector of the first board to the J4 connector of the second board (or vice versa) using the provided flat cable. Thus, the VDD supply voltage of the second board becomes the isolated supply voltage (VDD_iso) to supply the digital optocoupler of the first one.

2.5 LEDs

The control board embeds three user LEDs that, in ST FW applications, are usually adopted to show the status of the power converter and if any fault occurred. The number of blinks of each LED depends on the final application.

Table 4. Control board LEDs

Diode	Name	Color	Function
D2	STATUS_LED	Blue	Status LED: it indicates whether the converter is working normally (LED on), or it is in startup state.

Diode	Name	Color	Function
D3	FAULT_LED	Red	Fault LED: it indicates that a nonrecoverable fault occurred (for example, an overcurrent, etc.) and you have to restart the board.
D4	ERROR_LED	Yellow	Error LED: it indicates that a recoverable fault occurred (for example, an input undervoltage, etc.). The board restarts normal operation when the error is cleared.

3 Getting started

3.1 System requirements

- Windows® OS (7, 8, or 10), Linux® 64-bit, or macOS®
- Debugger and programmer for STM32 (ST-LINKV3, ST-LINK/V2) with the related cable

Note: macOS® is a trademark of Apple Inc. registered in the U.S. and other countries.
 Linux® is a registered trademark of Linus Torvalds.
 All other trademarks are the property of their respective owners.

3.2 Development toolchains

- IAR Systems - IAR Embedded Workbench®
- Keil® - MDK-ARM

Note: IAR Embedded Workbench® and MDK-ARM are available on Windows® only.

- STMicroelectronics - [STM32CubeIDE](#)

3.3 How to use the kit

3.3.1 Standalone mode

To use the [STEVAL-DPSG474](#) standalone, execute the following procedure.

Step 1. Choose one of the substeps below.

- Step 1a.** Connect the ST-LINKV3 programmer to the STD14 (CN1) connector and connect the USB cable to the PC.
- Step 1b.** Connect the adapter board to the STD14 (CN1) connector to use a programmer with a standard 20-pin JTAG connector, or to use one of the provided communication interfaces (UART, CAN, or SMBUS).

Step 2. Provide an external 5 V supply voltage to the J1 connector.
 The green LED (D1) turns on.

3.3.2 Using another power board

To use the [STEVAL-DPSG474](#) with another evaluation power board, follow the related user manual.

Important: Adopt an isolated programmer or a digital isolator to debug the power application running.

4 Schematic diagrams

Figure 5. STEVAL-DPSG474 control board: MCU circuit schematic

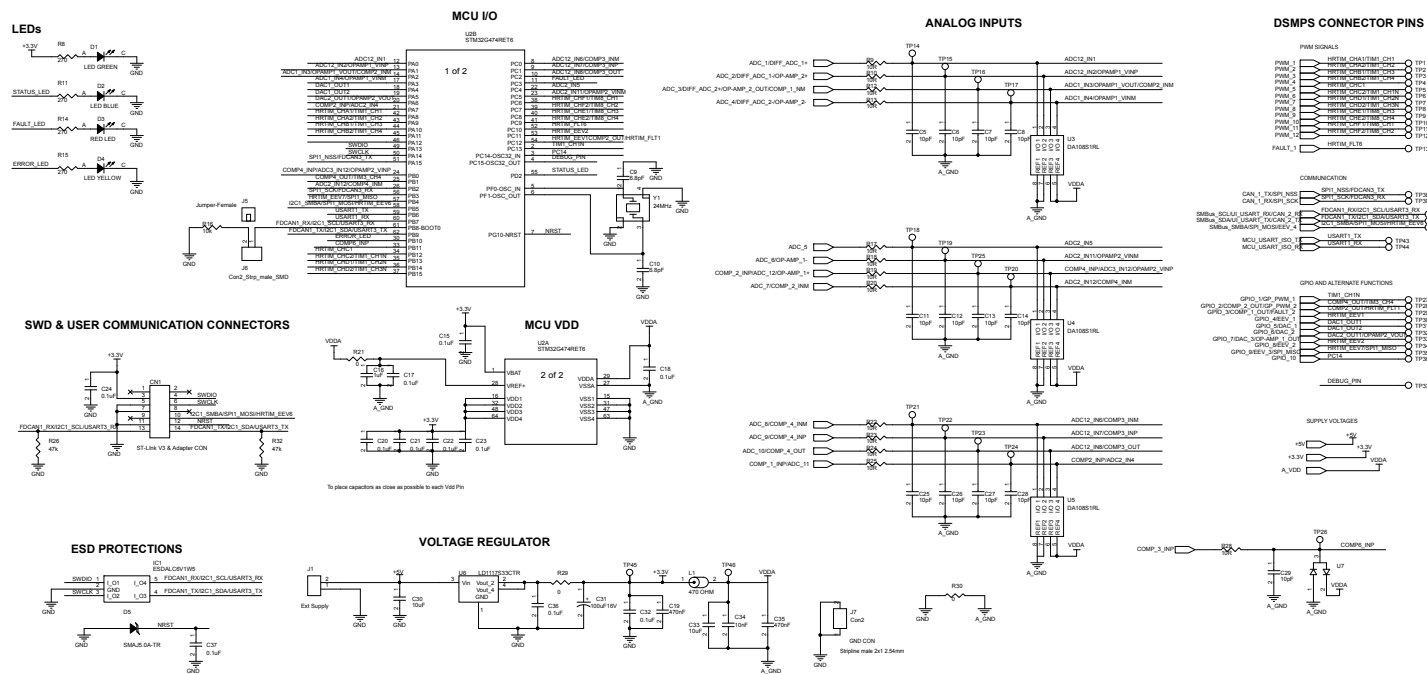


Figure 6. STEVAL-DPSG474 control board: D-SMPS connector circuit schematic

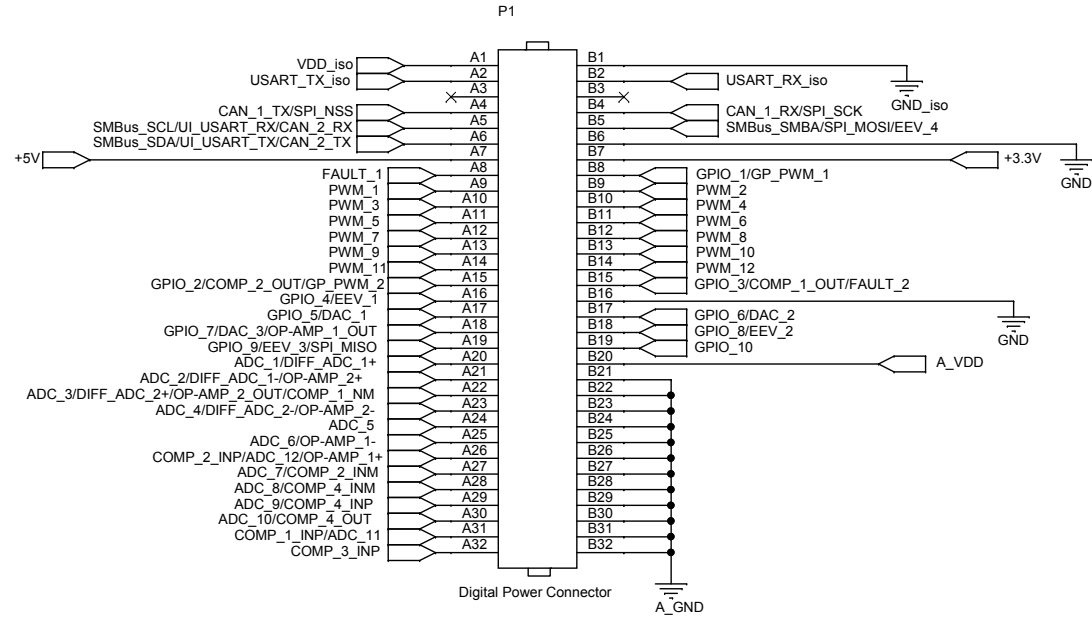
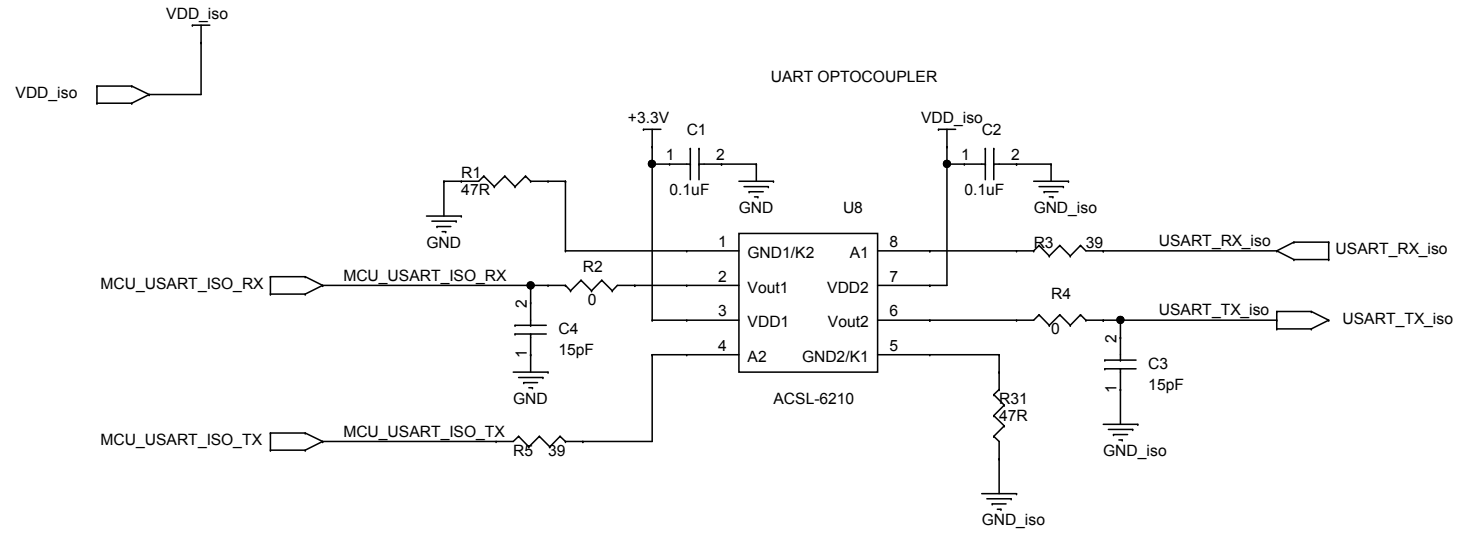
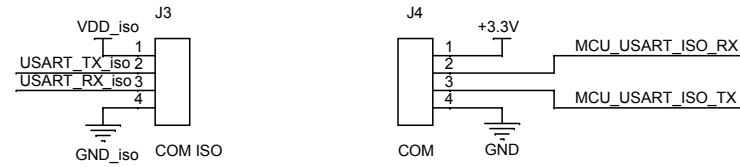


Figure 7. STEVAL-DPSG474 control board: isolated communication circuit schematic

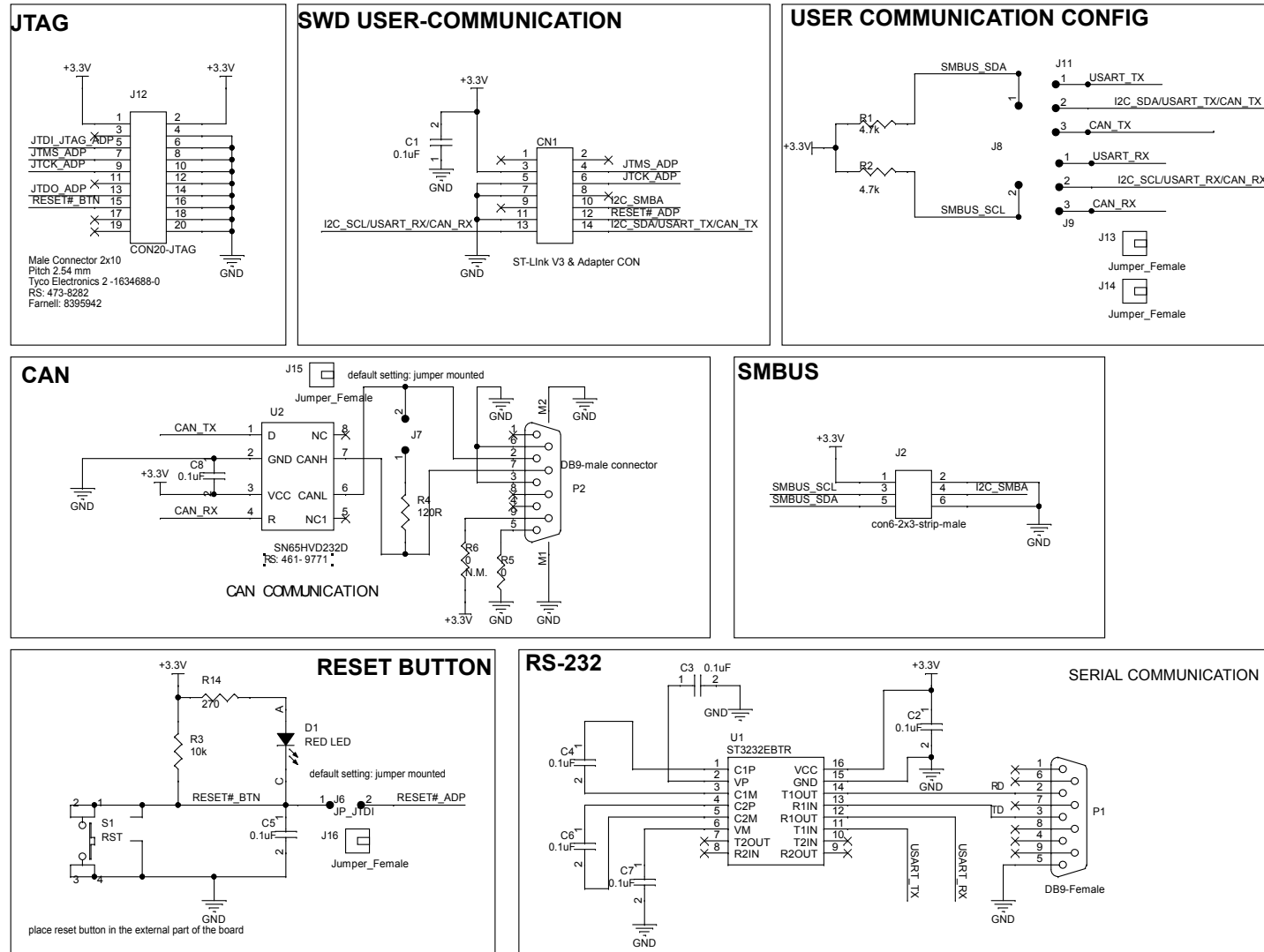


CONNECTION BETWEEN TWO CONTROL BOARDS



TO PLACE ON THE RIGHT AND ON THE LEFT SIDE OF THE BOARD, RESPECTIVELY

Figure 8. STEVAL-DPSG474 adapter board circuit schematic



5 Bill of materials

Table 5. STEVAL-DPSG474 bill of materials

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	1	Table 6. STEVAL-DPSG474M	-	Control board	ST	Not available for separate sale
2	1	Table 7. STEVAL-DPSADP02	-	Adapter board	ST	Not available for separate sale

Table 6. Control board bill of materials

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	13	C1 C2 C15 C17 C18 C20 C21 C22 C23 C24 C32 C36 C37	0.1uF 0603 (1608 Metric) 50V ±10%	CAP CER 0.1UF 50V X7R 0603	Würth Electronics Inc.	885012206095
2	2	C3 C4	15pF 0603 (1608 Metric) 50V ±5%	CAP CER 15pF 50V COG 0603	Würth Electronics Inc.	885012006052
3	13	C5 C6 C7 C8 C11 C12 C13 C14 C25 C26 C27 C28 C29	10pF 0603 (1608 Metric) 50 ±5%	CAPACITOR CERAMIC SMD 0603	Würth Elektronik Inc.	885012006051
4	2	C9 C10	6.8pF 0603 (1608 Metric) 50V 0.5pF	CAP CER 6.8PF 50V C0G/NP0 0603	Würth Electronics Inc.	885012006050
5	1	C16	1uF 0603 (1608 Metric) 25V ±10%	CAP CER 1UF 25V X7R 0603	Würth Electronics Inc.	885012206076
6	2	C19 C35	470nF 0603 (1608 Metric) 25V ±10%	CAP CER 0.47UF 25V X7R 0603	Würth Electronics Inc.	885012206075
7	2	C30 C33	10uF 0805 (2012 Metric) 16V ±20%	CAP CER 10UF 16V X5R 0805	Würth Electronics Inc.	885012107014
8	1	C31	100uF Radial, Can - SMD 16V ±20%	CAP ALUM 100UF 20% 16V SMD	Panasonic Electronic Components	EEE-FT1C101AR
9	1	C34	10nF 0603 (1608 Metric) 50V ±10%	Ceramic Multilayer Capacitors X7R	Würth Elektronik Inc.	885012206089
10	1	CN1	ST-Link V3 & Adapter CON	CONN HEADER SMD 14POS 1.27MM	Samtec Inc.	FTSH-107-01-F-DV- K-P-TR
11	1	D1	LED GREEN 0603 (1608 Metric) 20mA	LED GREEN CLEAR 0603 SMD	Würth Elektronik	150060GS75000
12	1	D2	LED BLUE 0603 (1608 Metric) 20mA	LED BLUE 0603 SMD	Vishay Semiconductor Opto Division	VLMB1310-GS08
13	1	D3	RED LED 0603 (1608 Metric) 20mA	LED RED CLEAR 0603 SMD	Würth Electronics Inc.	150060RS75000
14	1	D4	LED YELLOW 0603 (1608 Metric) 20mA	LED YELLOW CLEAR 0603 SMD	Würth Electronics Inc.	150060YS75000
15	1	D5	SMAJ5.0A-TR, SMA F2	400 W TVS in SMA	ST	SMAJ5.0A-TR
16	1	IC1	ESDALC6V1W5, SOT323-5L	Quad Transil array for ESD protection	ST	ESDALC6V1W5
17	1	J1	Ext Supply	CONN TERM BLOCK 2.54MM 2POS	Phoenix Contact	1725656

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
18	1	J3	COM ISO	CONN FEMALE-ON-BRD 4POS VERT T/H	TE Connectivity AMP Connectors	215079-4
19	1	J4	COM	CONN FEMALE-ON-BRD 4POS VERT T/H	TE Connectivity AMP Connectors	215079-4
20	1	J5	Jumper-Female	CONN JUMPER SHORTING 1.27MM GOLD	Sullins Connector Solutions	NPB02SVAN-RC
21	1	J6	Con2_Strp_male_SMD	CONN HEADER SMD 2POS 1.27MM	Harwin Inc.	M50-3630242R
22	1	J7	Con2	CONN HEADER 2POS VERT T/H	Amphenol FCI	77311-118-02LF
23	1	L1	470 OHM 0402 (1005 Metric)	FERRITE BEAD 470 OHM 0402 1LN	Würth Electronics Inc.	7427927141
24	1	P1	Digital Power Connector	Connector Erni 90° 384241 32X2 male	ERNI	384241
25	2	R1 R31	47R 0603 (1608 Metric) 0.1W, 1/10W ±1%	CHIP RESISTOR SMD 1% 1/10W 0603	Yageo	RC0603FR-0747RL
26	4	R2 R4 R21 R30	0 0603 (1608 Metric) 0.1W, 1/10W ±1%	CHIP RESISTOR SMD 1% 1/10W 0603	Yageo	RC0603FR-070RL
27	2	R3 R5	39 0603 (1608 Metric) 0.1W, 1/10W ±1%	RES SMD 39 OHM 1% 1/10W 0603	Panasonic Electronic Components	ERJ-3EKF39R0V
28	4	R8 R11 R14 R15	270 0603 (1608 Metric) 0.1W, 1/10W ±1%	CHIP RESISTOR SMD 1% 1/10W 0603	TE Connectivity	CRGP0603F270R
29	13	R9 R10 R12 R13 R17 R18 R19 R20 R22 R23 R24 R25 R28	10R 0603 (1608 Metric) 0.1W, 1/10W ±1%	CHIP RESISTOR SMD 1% 1/10W 0603	Stackpole Electronics	RMCF0603FT10R0
30	1	R16	10k 0603 (1608 Metric) 0.1W, 1/10W ±1%	RES SMD 10K OHM 1% 1/10W 0603	Yageo	RC0603FR-0710KL
31	2	R26 R32	47k 0603 (1608 Metric) 0.1W, 1/10W ±1%	RES SMD 47K OHM 1% 1/10W 0603	Yageo	RC0603FR-0747KL
32	1	R29	0 1206 (3216 Metric) 0.25W, 1/4W ±1%	CHIP RESISTOR SMD 1% 1/4W 1206	Yageo	RC1206JR-070RL
33	46	TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20 TP21 TP22 TP23 TP24 TP25 TP26 TP27 TP28 TP29 TP30 TP31 TP32 TP33 TP34 TP35 TP36 TP37 TP38 TP39 TP40	5001 0.100" Dia x 0.180" L (2.54mm x 4.57mm)	TEST POINT PC MINI .040"D BLACK	Keystone Electronics	5001

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
		TP41 TP42 TP43 TP44 TP45 TP46				
34	1	U2	STM32G474RET6, LQFP 64 10x10x1.4 mm	Arm® Cortex®-M4 32b MCU+FPU, 512KB Flash, 150 MHz, 128KB SRAM	ST	STM32G474RET6
35	3	U3 U4 U5	DA108S1RL, SO-8	Diode array of 8 diodes	ST	DA108S1RL
36	1	U6	LD1117S33CTR, SOT-223	Adjustable and fixed low drop positive voltage regulator	ST	LD1117S33CTR
37	1	U7	BAR43SFILM, SOT23	30 V, 100 mA Vf 0.33 V @ 2 mA SMD general purpose signal Schottky diode	ST	BAR43SFILM
38	1	U8	ACSL-6210 8-SOIC (0.154", 3.90mm Width)	OPTOISO 2.5KV 2CH OPEN COLL 8SO	Broadcom Limited	ACSL-6210-50RE
39	1	Y1	24MHz 4-SMD, No Lead, (3.20 x 2.50mm)	CRYSTAL 24.00 MHZ 9.0PF SMD	EPSON	TSX-3225 24.0000MF15X-AC6
40	1	Micro-Match 4 ways, 9.9", 250mm, 1.27mm	Cable	AMP Micro-Match	TE Connectivity	1483350-3

Table 7. Adapter board bill of materials

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	8	C1 C2 C3 C4 C5 C6 C7 C8	0.1uF 50 V ±10% 0603 (1608 Metric)	CAP CER 0.1UF 50V X7R 0603	Würth Electronics Inc.	885012206095
2	1	CN1	ST-Link V3 & Adapter CON	CONN HEADER SMD 14POS 1.27MM	Samtec Inc.	FTSH-107-01-F-DV-K- P-TR
3	1	D1	RED LED 0603 (1608 Metric) 20 mA	LED RED CLEAR 0603 SMD	Würth Electronics Inc.	150060RS75000
4	1	J2	con6-2x3-strip-male	CONN HEADER .100 DUAL STR 6POS	Sullins Connector Solutions	PEC03DFAN
5	3	J6 J7 J8	JP_JTDI		Amphenol FCI	77311-118-02LF
6	2	J9 J11	JP_JTDI		Amphenol FCI	77311-118-03LF
7	1	J12	CON20-JTAG	CONN IDC BOX HEADER 2.54MM 20POS	Tyco Electronics	2-1634688-0
8	2	J13 J14	Jumper_Female	CONN JUMPER SHORTING .100" GOLD	Sullins Connector Solutions	QPC02SXGN-RC
9	2	J15 J16	Jumper_Female	CONN JUMPER SHORTING .100" GOLD	Sullins Connector Solutions	QPC02SXGN-RC
10	1	P1	DB9-Female		Würth Electronics Inc.	618009231321
11	1	P2	DB9-male connector	CONN D-SUB PLUG 9POS VERT SOLDER	Würth Electronics Inc.	618009231421
12	2	R1 R2	4.7k ±10% 0603 (1608 Metric) 0.1W, 1/10W ±1%	RES SMD 4.7K OHM 1% 1/10W 0603	Stackpole Electronics	RMCF0603FT4K70

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
13	1	R3	10k 0603 (1608 Metric) 0.1W, 1/10W ±1%	RES SMD 10K OHM 1% 1/10W 0603	Yageo	RC0603FR-0710KL
14	1	R4	120R 0603 (1608 Metric) 0.1W, 1/10W ±1%	RES SMD 120R OHM 1% 1/10W 0603	Yageo	RC0603FR-07120RL
15	1	R5	0 0603 (1608 Metric) 0.1W, 1/10W ±1%	CHIP RESISTOR SMD 1% 1/10W 0603	Yageo	RC0603FR-070RL
16	1	R6	0 0603 (1608 Metric) 0.1W, 1/10W ±1%	CHIP RESISTOR SMD 1% 1/10W 0603 (not mounted)	Yageo	RC0603FR-070RL
17	1	R14	270 0603 (1608 Metric) 0.1W, 1/10W ±1%	CHIP RESISTOR SMD 1% 1/10W 0603	TE Connectivity	CRGP0603F270R
18	1	S1	RST	SWITCH TACTILE SPST- NO 0.05A 12V	Wurth Electronics Inc.	430483025816
19	1	U1	ST3232EBTR, TSSOP-16L	15 kV ESD protection, 3 to 5.5 V low power, up to 250 kbps, RS-232 drivers and receivers	ST	ST3232EBTR
20	1	U2	SN65HVD232D	IC TRANSCEIVER HALF 1/1 8SOIC	Texas Instruments	SN65HVD232D
21	1		FLAT CABLE		Samtec Inc.	FFSD-07-D-06.00-01-N

6 Kit versions

Table 8. STEVAL-DPSG474 versions

PCB version	Schematic diagrams	Bill of materials
STEVAL\$DPSG474A ⁽¹⁾	STEVAL\$DPSG474A schematic diagrams	STEVAL\$DPSG474A bill of materials

1. This code identifies the STEVAL-DPSG474 evaluation kit first version. It is printed on the board PCB. The kit includes the STEVAL-DPSG474M control board, whose first version is identified by the STEVAL\$DPSG474MA code, and the STEVAL-DPSADP02, whose first version is identified by the STEVAL\$DPSADP02A code.

7 Regulatory compliance information

Formal Notice Required by the U.S. Federal Communications Commission

FCC NOTICE

This kit is designed to allow:

(1) Product developers to evaluate electronic components, circuitry, or software associated with the kit to determine

whether to incorporate such items in a finished product and

(2) Software developers to write software applications for use with the end product.

This kit is not a finished product and when assembled may not be resold or otherwise marketed unless all required FCC equipment authorizations are first obtained. Operation is subject to the condition that this product not cause harmful interference to licensed radio stations and that this product accept harmful interference. Unless the assembled kit is designed to operate under part 15, part 18 or part 95 of this chapter, the operator of the kit must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter 3.1.2.

Formal Product Notice Required by Industry Canada Innovation, Science and Economic Development

Canada compliance:

For evaluation purposes only. This kit generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to Industry Canada (IC) rules.

À des fins d'évaluation uniquement. Ce kit génère, utilise et peut émettre de l'énergie radiofréquence et n'a pas été testé pour sa conformité aux limites des appareils informatiques conformément aux règles d'Industrie Canada (IC).

Formal product notice required by EU

This device is in conformity with the essential requirements of the Directive 2014/30/EU (EMC) and of the Directive 2015/863/EU (RoHS).

Revision history

Table 9. Document revision history

Date	Revision	Changes
12-Apr-2022	1	Initial release.

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