
SPC58NG-DISP discovery board

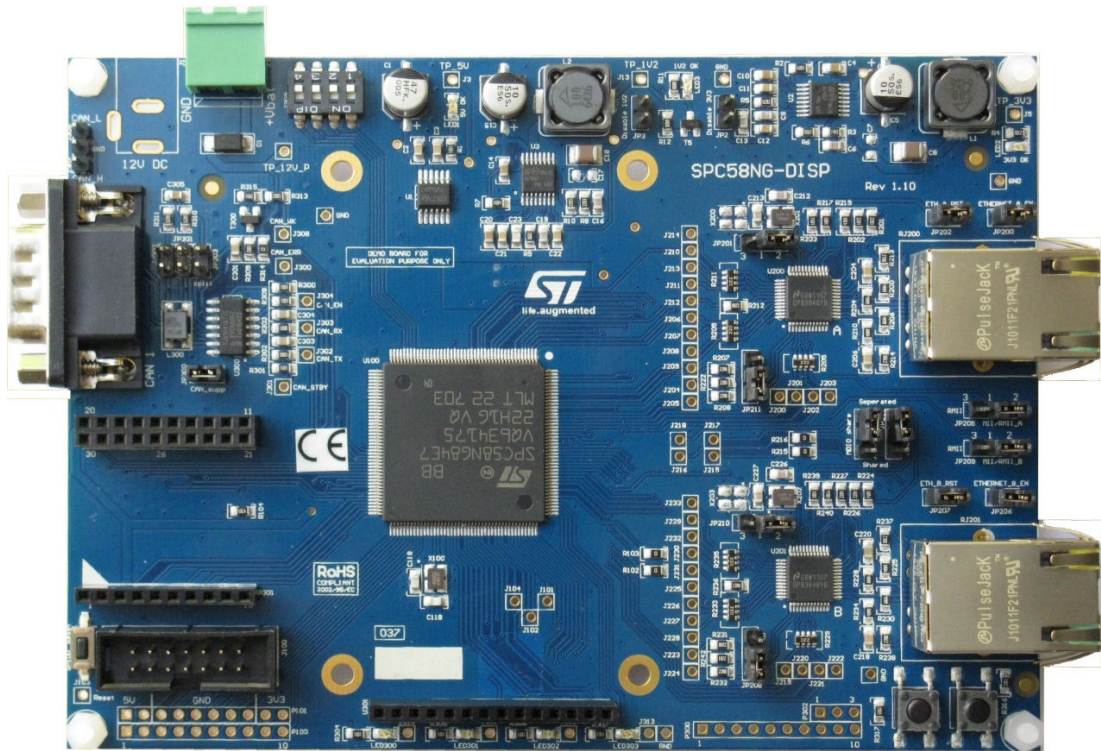
Introduction

The SPC58NG-DISP discovery board is the hardware platform to evaluate and develop applications with the SPC58NG84E7 microcontroller at budget price.

This document describes the hardware architecture of the board and how it is possible to enable specific functions.

1 SPC58NG-DISP

Figure 1. SPC58NG-DISP



The SPC58NG-DISP discovery board is based on the microcontroller SPC58NG84E7, a high performance e200z4d triple core 32-bit Power Architecture® technology CPU, 6 MB Flash with HSM cryptography in an eTQFP176 package.

The several interfaces including GPI/O's, peripherals such as DSPI, LINFlexD (LIN and UART), FlexRay, M_CAN ISO CAN-FD and two ethernet ports make the SPC570S-DISP an excellent starter kit for the customer to quickly evaluate the microcontroller as well as to develop and debug application.

Free ready-to-run application firmware examples are available inside SPC5Studio web page (www.st.com/spc5studio) to support quick evaluation and development.

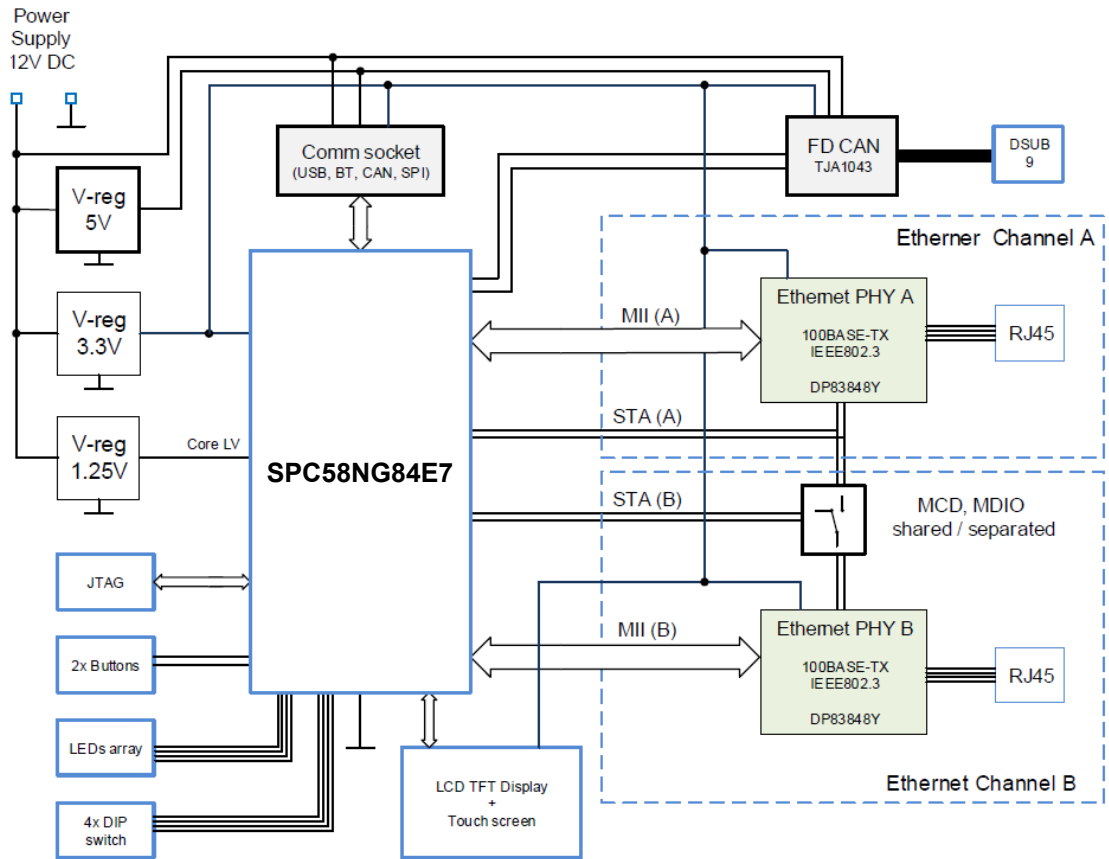
The PCB, the components and all HW parts assembled in this board the meet requirements of the applicable RoHS directives.

1.1 I/O interface and connectors

- 2 ethernet ports 100BASE-TX
- 1 CAN FD port with DB9 connector
- 1 CAN + 1 LIN/UART +1 SPI
- 2 FlexRay channels
- JTAG (header 2 x 7 pin)
- 4 LED's user
- 4 DIP switches
- 2 user push buttons
- 12 V DC power supply (external PSU)
- RESET push button
- 40 MHz crystal
- Option: LCD TFT display (320 x 240) with touch screen

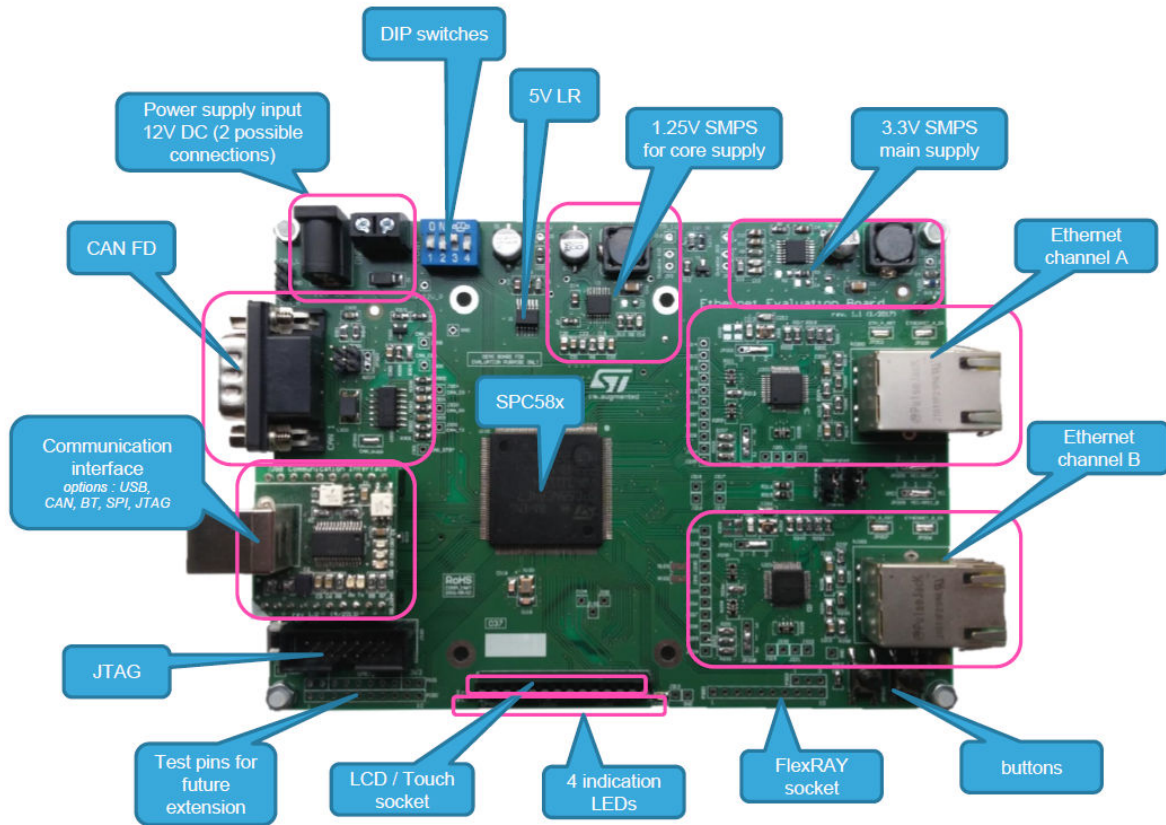
2 SPC58NG-DISP block diagram

Figure 2. SPC58NG-DISP block diagram



3 Hardware overview

Figure 3. SPC58NG-DISP: HW overview



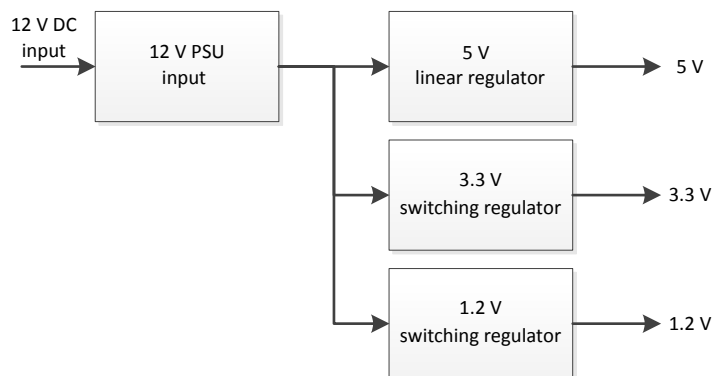
3.1 Power supply section

The Figure 4 shows the PSU block diagram.

The DC input source is 12 V and the three voltage regulators generate 5 V, 3.3 V and 1.2 V supply voltages.

The LEDs D1, D2 and D3 are used to monitor the output of each voltage regulator as well as the test points J2, J3, J5 and J13 to allow measuring the voltage levels 12 V, 5 V, 3.3 V and 1.2 V respectively.

Figure 4. PSU section – block diagram

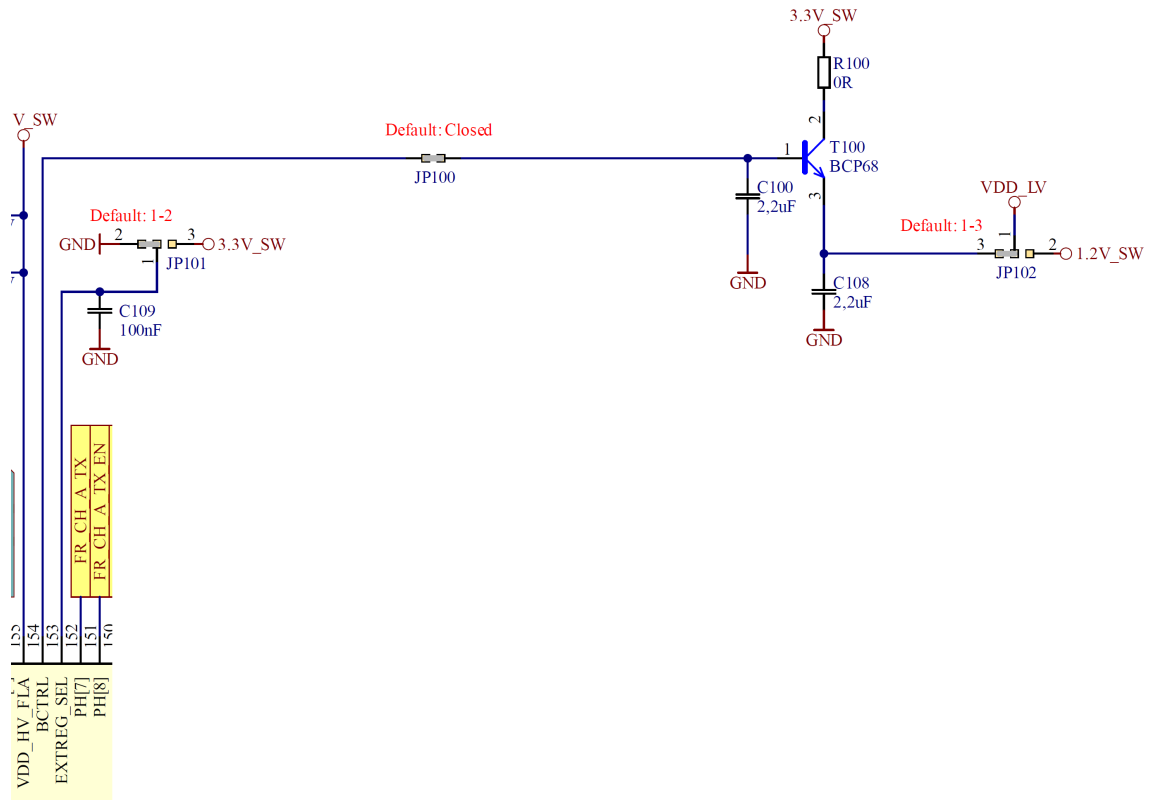


3.1.1 Power supply - jumper configuration

U2 provides 3.3 V output voltage used to supply the VDD_HV pins. The test point J5 can be used to monitor the VDD_HV supply voltage level.

An internal regulator supplied by 3.3V_SW drives a ballast BJT to generate VDD_LV; Figure 5. Microcontroller power supply configuration is showing the VDD_LV generator.

Figure 5. Microcontroller power supply configuration

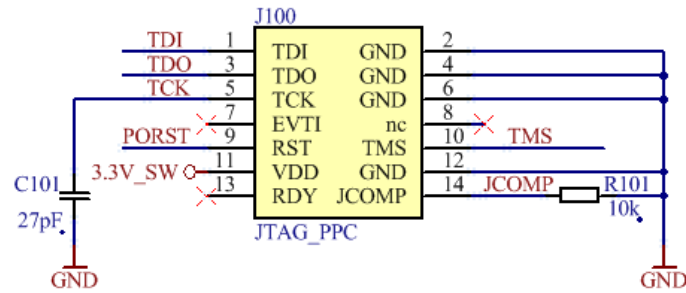


3.2 Microcontroller section

3.2.1 Programmer/debugger JTAG port

A standard 14 pin JTAG port is available for programming and debugging (Figure 6).

Figure 6. JTAG connector



3.3 User LEDs and user buttons

In the board, the following functions are available:

- 4 LEDs (Figure 7)
- 2 push buttons (Figure 8)
- 4 DIP switches (Figure 9)

Figure 7. User LEDs

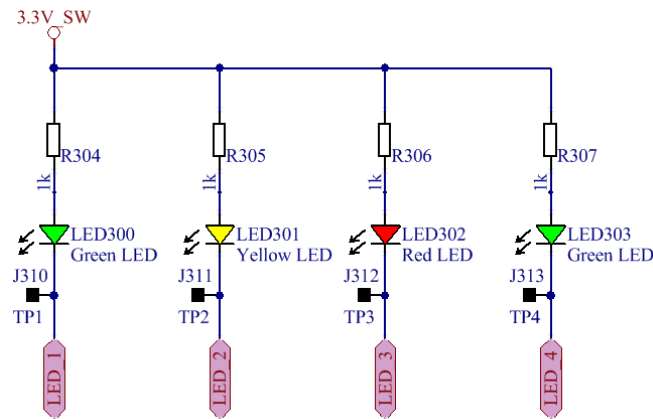


Figure 8. User push buttons

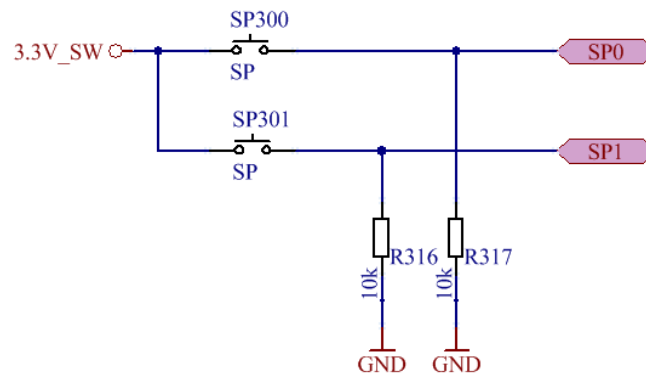
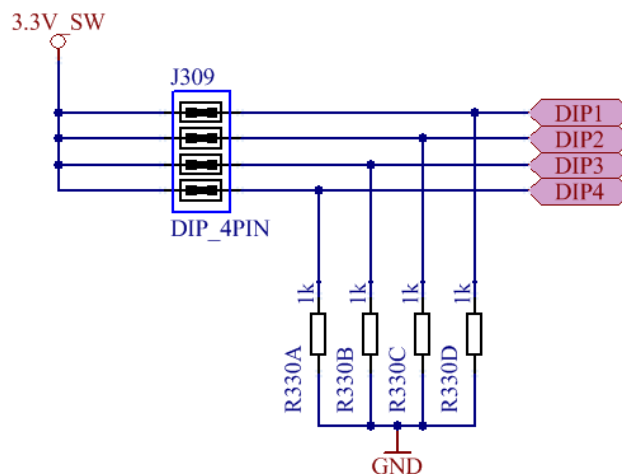
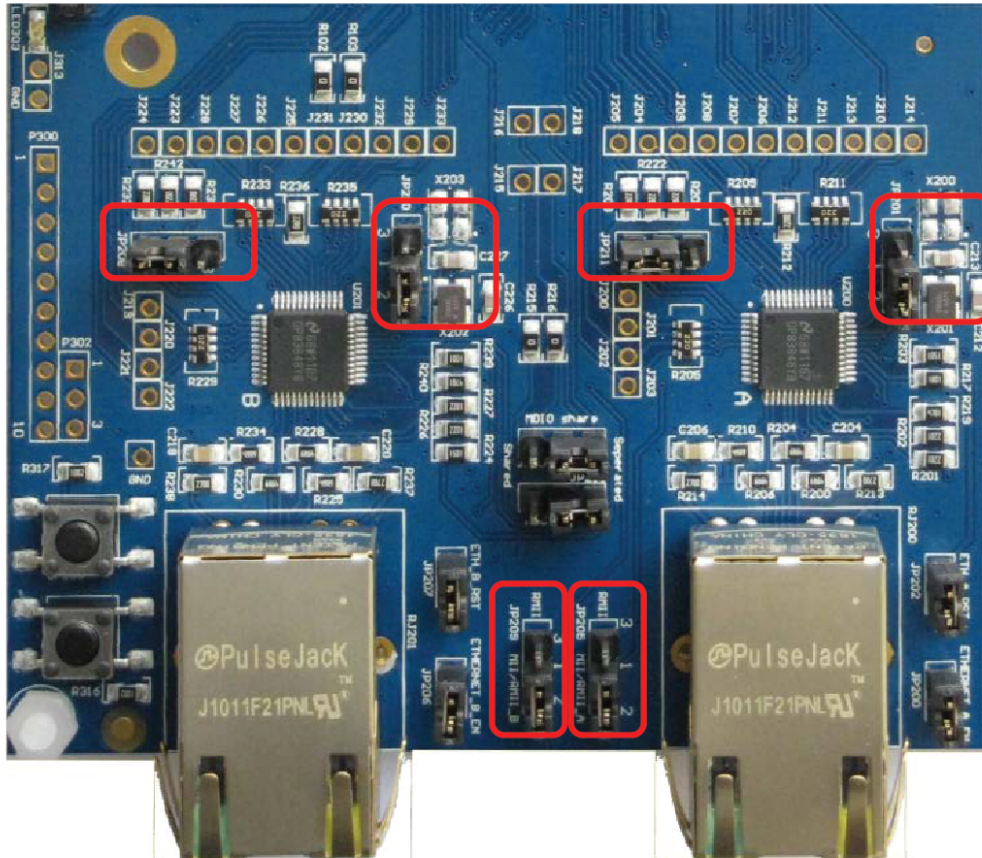


Figure 9. Dip switches



3.4 Ethernet configuration

Figure 10. Ethernet configuration



3.4.1 Ethernet MII / RMI configuration

Table 1. Ethernet MII jumper configuration

Default configuration - MII	
Jumper	Jumper setting
JP205	1-2
JP201	1-2
JP211	1-2
JP209	1-2
JP210	1-2
JP208	1-2

Table 2. Ethernet RMI jumper configuration

Default configuration - RMI	
Jumper	Jumper setting
JP205	1-3
JP201	1-3
JP211	1-3
JP209	1-3
JP210	1-3
JP208	1-3
X200	Assembled
X203	Assembled

3.4.2 Ethernet PHY serial management

Table 3. Ethernet - Configuration for separated management

Configuration for separated management	
MDC0, MDIO0 linked to ETH0	
MDC1, MDIO1 linked to ETH1	
JP203	1-2
JP204	1-2

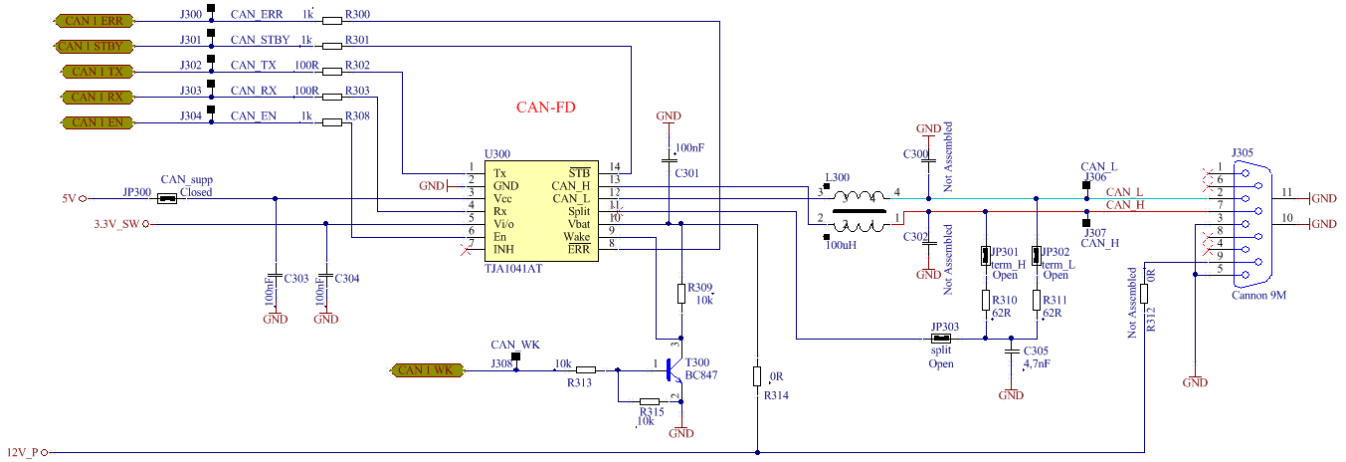
Table 4. Ethernet - Configuration for share management

Configuration for shared management	
MDC0, MDIO0 linked to ETH0 and ETH1	
ETH0 = address 1	
ETH1 = address 3	
JP203	1-3
JP204	1-3

3.5 CAN-FD

The Figure 11 shows the CAN-FD section with the transceiver and the DB9 connector.

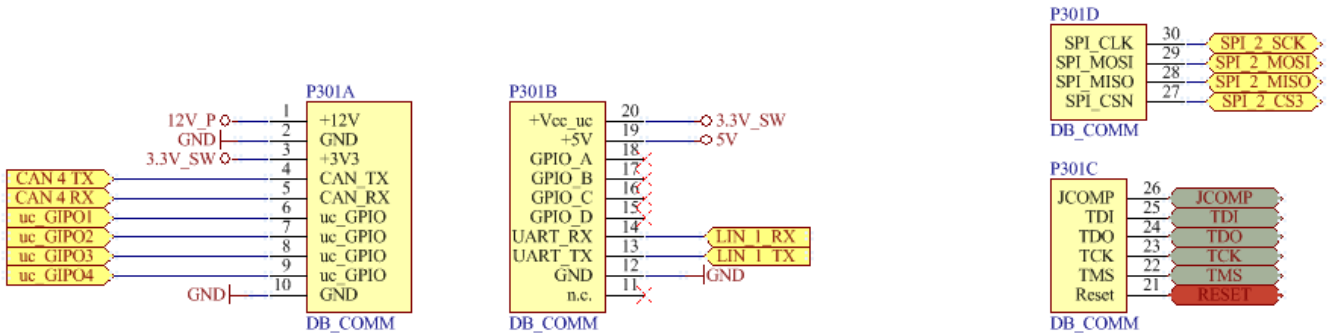
Figure 11. CAN-FD



3.6 Communication daughter board socket

The functionality of SPC58NG-DISP increases the plugging of some additional daughter boards in the connectors P301, P301B, P301C and P301D (see Figure 12).

Figure 12. Communication daughter board socket



Revision history

Table 5. Document revision history

Date	Version	Changes
31-Jul-2017	1	Initial release.
03-Sep-2018	2	Updated <i>Introduction</i> . Minor text changes.
18-Feb-2021	3	Updated title in cover page. Updated Section 3.1.1 Power supply - jumper configuration and moved from previous to current position. Minor text changes.
12-May-2023	4	Updated Section 3.1.1 Power supply - jumper configuration .

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