

# **EVALKIT Core-SF2**

## **DATA SHEET**



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# 1 INTRODUCTION

This document describes the hardware architecture of the Cubit *Core-SF2 Evaluation Board* (72038100).

This board can interface a Core-SF2 SOM module and it is designed for learning, and fast prototyping.

## 2 HARDWARE PLATFORM

This section describes the hardware of the Core-SF2 EVAL board

### 2.1 Overview

- 101.6x101.6mm form factor
- Core-SF2 SOM interface using two 50pin mezzanine connectors
- Powered from single +5Vdc  $\pm 5\%$  power supply:
  - Current supply target data: 1A $\div$ 2A
  - Standard Plug connector (2.5mm)
  - 2 pins Terminal block (pitch 3.5mm)
  - Reverse voltage protection circuit
  - 2A non resettable fuse
- Green LED for power supply indication
- Optional UART0 interface header connector (pitch 2.54mm)
- Optional PGOOD R-C network
- RJ45 Ethernet Interface connector (1000 Mbit/s)
- Development Connectors:
  - Up to 58 I/O signals available
  - 2 Dual-row optional connectors pitch 2.54mm

## 2.2 Block Diagram

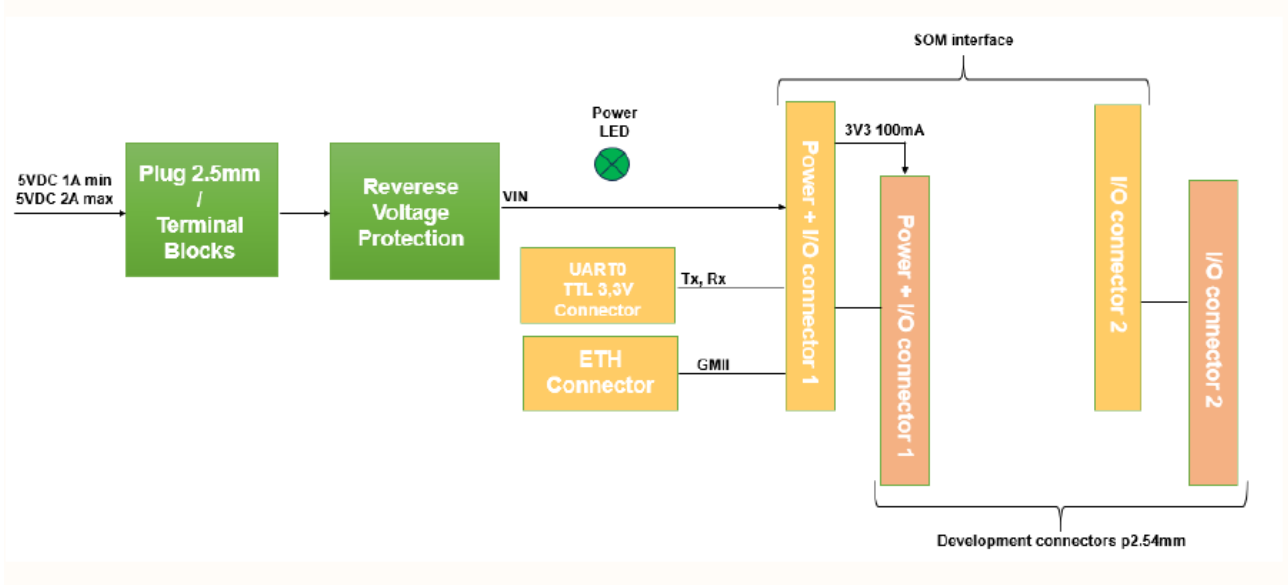


Fig.1 – Functional Block Diagram

## 2.3 Power Supply

The Core-SF2 EVAL Board is run from a single +5Vdc  $\pm 5\%$  1A÷2A power source provided via a Plug connector (CN1) or a Terminal block connector (CN4).

Power supply from the EVAL-Board takes priority over the SOM USB Power/JTAG connector.

A 3V3 power supply output pin from SOM module is available on the external interface connector. This pin is intended for the development of small prototyping boards. The maximum current load is 100mA.

No reset circuit is available on the EVAL-board.

## 2.4 UART Interface

A CN5 optional connector provides the SOM UART0 Tx/Rx serial interface at 3,3V level. By default UART0 is connected to the SOM USB interface connector.

To switch UART0 to this connector the User's Project must properly manage the local UART0\_MUX signal. See *SOM\_72037800\_hw\_datasheet\_Rxx.pdf* for details.

## 2.5 Ethernet Controller

The Core-SF2 SOM provides an Ethernet interface capable of 10/100/1000 Mbit/s data rate. To simplify the development of a prototype board the 4 x 100Ω differential pairs and LEDs status signals are properly routed to an RJ45 connector (CN8). See *SOM\_72037800\_hw\_datasheet\_Rxx.pdf* for details.

## 2.6 Development Connectors

The two 25x2 mezzanine connectors of the SOM interface are routed in two dual-row strip-line connectors pitch 2.54mm (CN6, CN7).

Users can solder Pin/Socket straight/right angle header connectors to simplify the development of a prototype board and the use of laboratory tools (i.e. oscilloscope), thereby reducing the risk of damage to the SOM.

# 3 DEVELOPMENT CONNECTORS PIN-OUT

## 3.1 Power supply and MSS peripherals

CN6 pin	Name	Type	M2S010 pin	Description	Notes
1	GND	Power	-	SOM ground	
2	GND	Power	-	SOM ground	
3	GND	Power	-	SOM ground	
4	GND	Power	-	SOM ground	
5	VIN	Power	-	+5V SOM power supply	
6	VIN	Power	-	+5V SOM power supply	
7	VIN	Power	-	+5V SOM power supply	
8	VIN	Power	-	+5V SOM power supply	
9	ETH_LED1	Output	-	Reserved for ETH LED1	Ethernet Activity LED

10	3V3	Output	-	3.3V output power supply from SOM	Max 100mA
11	ETH_LED2	Output	-	Reserved for ETH LED2	Ethernet Link LED
12	RESET#	I/O (3.3V)	-	System Reset	
13	CAN_RX	I/O (3.3V)	N20	MSS CAN-bus receive data input or Fabric/MSS GPIO	
14	PGOOD	Input (3.3V)	-	Power Good signal from Application board	
15	CAN_TX	I/O (3.3V)	R15	MSS CAN-bus transmit data output or Fabric/MSS GPIO	
16	UART1_RXD	I/O (3.3V)	F18	MSS or Fabric/MSS GPIO UART1 receive data input	
17	UART0_RXD	Input (3.3V)	C19	MSS UART0 receive data input or Fabric/MSS GPIO	
18	UART1_TXD	I/O (3.3V)	G16	MSS UART1 transmit data output or Fabric/MSS GPIO	
19	UART0_TXD	Output (3.3V)	D18	MSS UART0 transmit data output or Fabric/MSS GPIO	
20	I2C0_SCL	I/O (3.3V)	A19	MSS I2C0-bus serial i/o clock or Fabric/MSS GPIO	
21	F_GOLDEN#	Input 100K $\Omega$ pull-up	D19	Golden image control	
22	I2C0_SDA	I/O (3.3V)	A20	MSS I2C0-bus serial i/o data or Fabric/MSS GPIO	
23	GND	Power	-	SOM ground	
24	SPI1_CLK	I/O (3.3V)	L15	MSS SPI1 serial clock output or Fabric/MSS GPIO	
25	-	-	-	Unused pin	
26	SPI1_DI	I/O (3.3V)	L16	MSS SPI1 serial data input or Fabric/MSS GPIO	
27	-	-	-	Unused pin	
28	SPI1_DO	I/O (3.3V)	K20	MSS SPI1 serial data output or Fabric/MSS GPIO	
29	GND	Power	-	SOM ground	

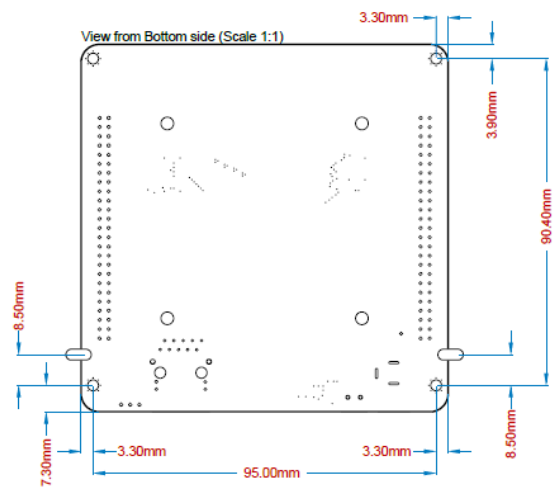
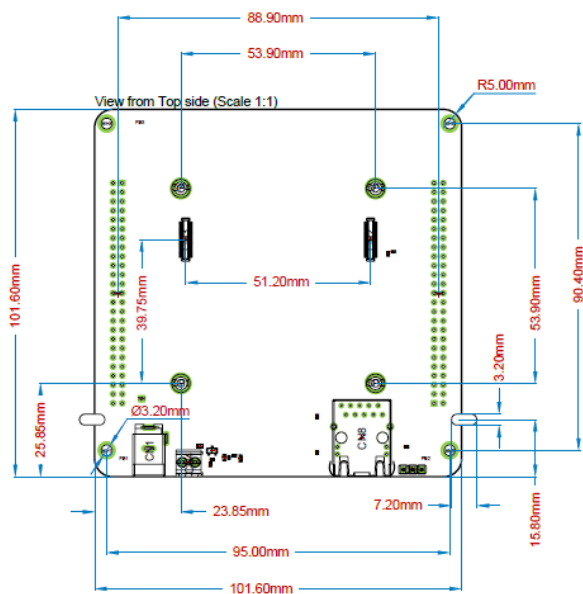
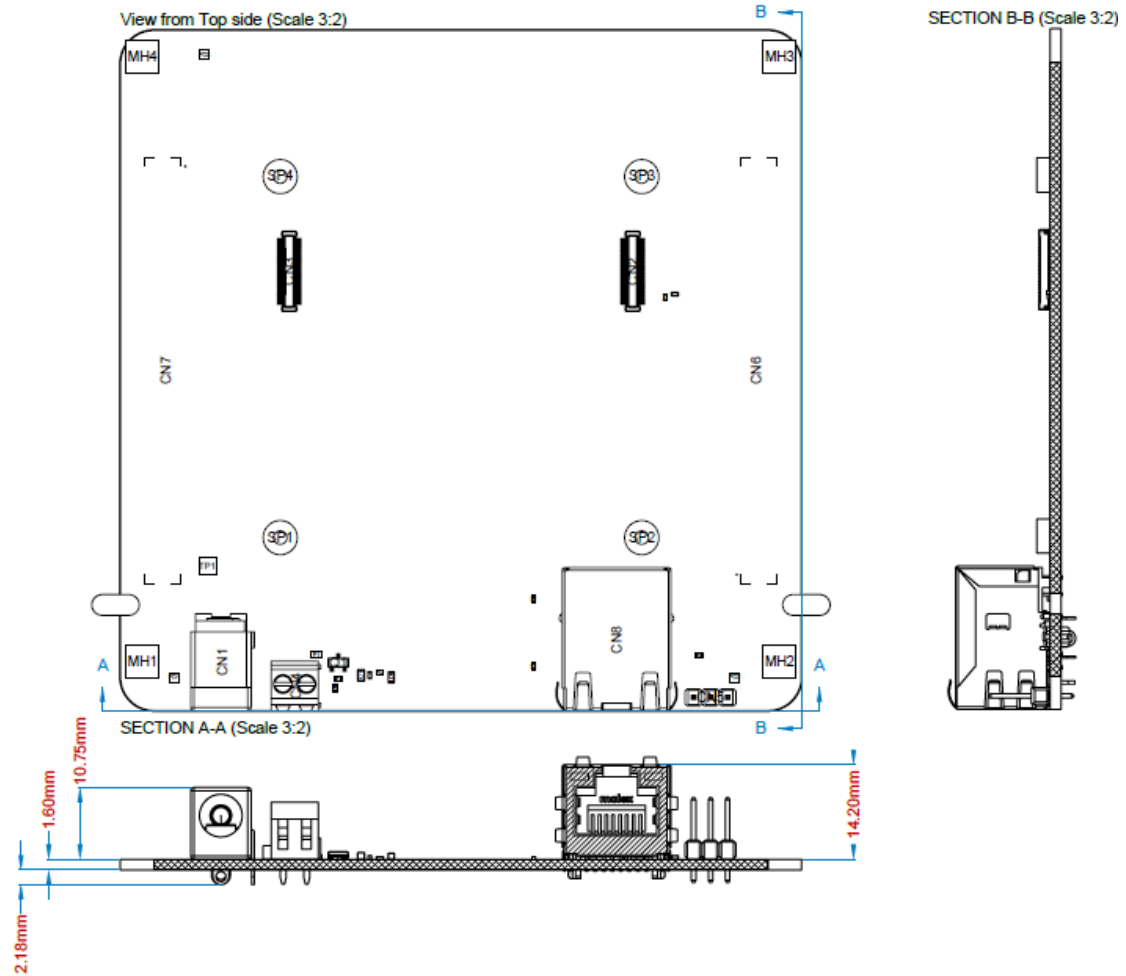
30	SPI1_CS#	I/O (3.3V)	J20	MSS SPI1 chip select or Fabric/MSS GPIO	
31	-	-	-	Unused pin	
32	DVDDH	Output	-	3,3V reserved for ETH LEDs	
33	-	-	-	Unused pin	
34	I2C1_SCL	I/O (3.3V)	M17	MSS I2C1-bus serial i/o clock or Fabric/MSS GPIO	
35	GND	Power	-	SOM ground	
36	I2C1_SDA	I/O (3.3V)	N16	MSS I2C1-bus serial i/o data or Fabric/MSS GPIO	
37	-	-	-	Unused pin	
38	SPI0_CLK	I/O (3.3V)	P15	MSS SPI0 serial clock output or Fabric/MSS GPIO	
39	-	-	-	Unused pin	
40	SPI0_DI	I/O (3.3V)	N15	MSS SPI0 serial data input or Fabric/MSS GPIO	
41	GND	Power	-	SOM ground	
42	SPI0_DO	I/O (3.3V)	L20	MSS SPI0 serial data output or Fabric/MSS GPIO	
43	-	-	-	Unused pin	
44	SPI0_CS1#	I/O (3.3V)	G17	MSS SPI0 chip select or Fabric/MSS GPIO	
45	-	-	-	Unused pin	
46	SOM_READY#	I/O (3.3V)	E3	MSS System Ready output or Fabric/MSS GPIO	100KΩ pull-up
47	GND	Power	-	SOM ground	
48	GND	Power	-	SOM ground	
49	GND	Power	-	SOM ground	
50	GND	Power	-	SOM ground	

## 3.2 Generic I/O signals

CN4 pin	Name	Type	M2S010 pin	Description	Notes
1	NC	-	-	Not connected	
2	NC	-	-	Not connected	
3	GND	Power	-	SOM ground	
4	GND	Power	-	SOM ground	
5	GP5	I/O (3.3V)	T15	Fabric/MSS GPIO	
6	GP6	I/O (3.3V)	H5	Fabric/MSS GPIO	
7	GP7	I/O (3.3V)	U12	Fabric/MSS GPIO	
8	GP8	I/O (3.3V)	H4	Fabric/MSS GPIO	
9	GP9	I/O (3.3V)	U14	Fabric/MSS GPIO	
10	GP10	I/O (3.3V)	H6	Fabric/MSS GPIO	
11	GP11	I/O (3.3V)	V11	Fabric/MSS GPIO	
12	GP12	I/O (3.3V)	G4	Fabric/MSS GPIO	
13	GP13	I/O (3.3V)	U11	Fabric/MSS GPIO	
14	GP14	I/O (3.3V)	G6	Fabric/MSS GPIO	
15	GP15	I/O (3.3V)	U13	Fabric/MSS GPIO	
16	GP16	I/O (3.3V)	G3	Fabric/MSS GPIO	
17	GND	Power	-	SOM ground	
18	GND	Power	-	SOM ground	
19	GND	Power	-	SOM ground	
20	GND	Power	-	SOM ground	
21	GP21	I/O (3.3V)	J7	Fabric/MSS GPIO	
22	GP22	I/O (3.3V)	F7	Fabric/MSS GPIO	
23	GP23	I/O (3.3V)	R12	Fabric/MSS GPIO	
24	GP24	I/O (3.3V)	F6	Fabric/MSS GPIO	

25	GP25	I/O (3.3V)	R13	Fabric/MSS GPIO	
26	GP26	I/O (3.3V)	G2	Fabric/MSS GPIO	
27	GP27	I/O (3.3V)	T14	Fabric/MSS GPIO	
28	GP28	I/O (3.3V)	G1	Fabric/MSS GPIO	
29	GP29	I/O (3.3V)	T13	Fabric/MSS GPIO	
30	GP30	I/O (3.3V)	F5	Fabric/MSS GPIO	
31	GP31	I/O (3.3V)	V12	Fabric/MSS GPIO	
32	GP32	I/O (3.3V)	F1	Fabric/MSS GPIO	
33	GP33	I/O (3.3V)	V14	Fabric/MSS GPIO	
34	GP34	I/O (3.3V)	F3	Fabric/MSS GPIO	
35	GP35	I/O (3.3V)	W10	Fabric/MSS GPIO	
36	GP36	I/O (3.3V)	E2	Fabric/MSS GPIO	
37	GP37	I/O (3.3V)	V15	Fabric/MSS GPIO	
38	GP38	I/O (3.3V)	F4	Fabric/MSS GPIO	
39	GP39	I/O (3.3V)	Y16	Fabric/MSS GPIO	
40	GP40	I/O (3.3V)	E5	Fabric/MSS GPIO	
41	GP41	I/O (3.3V)	Y15	Fabric/MSS GPIO	
42	GP42	I/O (3.3V)	Y13	Fabric/MSS GPIO	
43	GP43	I/O (3.3V)	W15	Fabric/MSS GPIO	
44	GP44	I/O (3.3V)	Y10	Fabric/MSS GPIO	
45	GP45	I/O (3.3V)	W14	Fabric/MSS GPIO	
46	GP46	I/O (3.3V)	W13	Fabric/MSS GPIO	
47	GND	Power	-	SOM ground	
48	GP48	I/O (3.3V)	Y12	Fabric/MSS GPIO	
49	GND	Power	-	SOM ground	
50	GND	Power	-	SOM ground	

# 4 MECHANICAL SPECIFICATIONS



## 5 REVISION HISTORY

Revision	Date	Changes
00	31/10/2025	First release