

XLBoard- External IPG Accelerometer

Revision Log

Version Control

Ver	Rev	Date	Description	Author	Reviewer	Approver
1.0	A	08/07/2023	Project created	M. Barreiro	A. Rios	R. Ercoli
1.1	A	17/07/2025	Added 0 Ohm resistors to configure I2C Address.	M. Ferreira	J. Evia	A. Rios

Mechanical & Miscellaneous

ERC reference

✗ NC - Not Connected

Type of Soldering

Lead-to-PCB connection should be Through-Hole Technology (THT).

Notes

MIS2DH was selected due to its main advantage of being medical grade.

I2C mode selection with pin CS connected to GND. The Slave Address (SAD) associated to the MIS2DH is 0011000b.

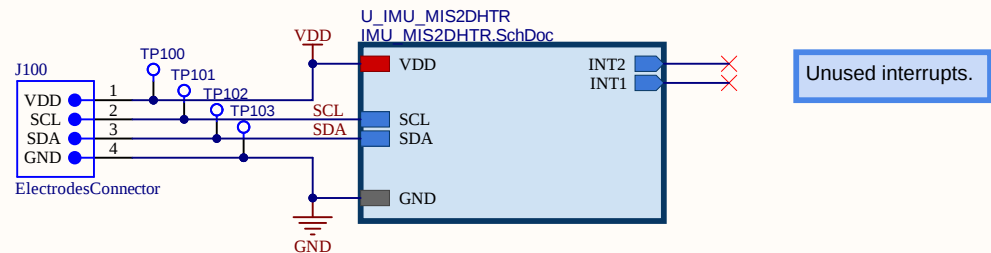
The device core is supplied through the Vdd line while the I/O pads are supplied through the Vdd_IO line. Power supply decoupling capacitors should be placed as near as possible to pin 9 of the device.

According to MIS2DH specifications:
The minimum rise/fall time allowed by the MIS2DH: 5 us

	Project: XLBoard.PrjPcb	
	Schematic: Cover	Ver: 1.1
	Design by: M. Ferreira	Date: 17/07/2025
	Reviewed by: J. Evia	Sheet: 1 / 3

XLBoard- External IPG Accelerometer

MIS2DHTR I2C Accelerometer



Mechanical requirements related to the connection and interface with leads on the board:

- Type of Soldering: Lead-to-PCB connection should be Through-Hole Technology (THT).
- Number of Lines: 4.
- Hole Diameter: 20mil.
- Additional Mechanical Mounting Information: TBD.

I2C mode selection:

CS: I2C communication enabled
SA0: I2C less significant bit of the device address
SDA: I2C serial data
SCL: Clock frequency

The Slave Address (SAD) associated to the MIS2DH is 001100xb.

If the SA0 pad is connected to ground, the LSB value is '0' (address 0011000b).



FOCUS

Project:
XLBoard.PrjPcb

Schematic: **Block Diagram**

Ver: 1.1

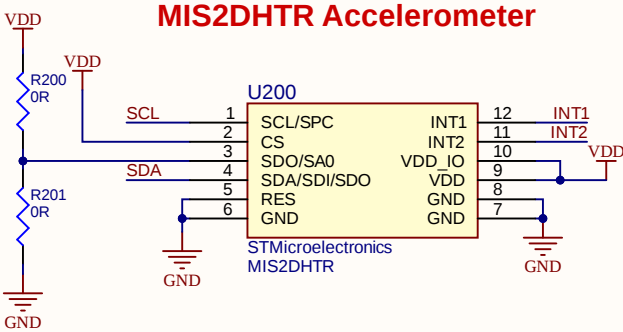
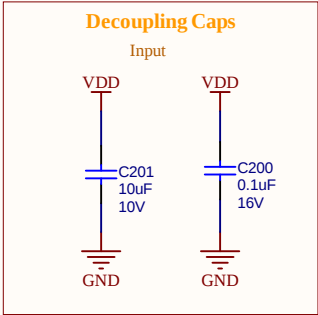
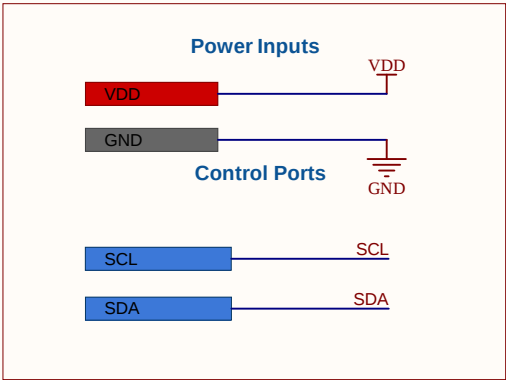
Design by: **M. Ferreira**

Date: 17/07/2025

Reviewed by: **J. Evia**

Sheet: 2 / 3

XLBoard- External IPG Accelerometer

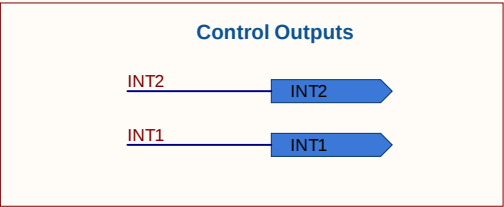


I2C/SPI mode selection with pin CS:
1: SPI idle mode / I2C communication enabled
0: SPI communication mode / I2C disable

SDO: SPI serial data output (SDO)
SA0: I2C less significant bit of the device address (SA0)

SDA: I2C serial data (SDA)
SDI: SPI serial data input (SDI)
SDO: 3-wire interface serial data output (SDO)

The threshold and timing of the two interrupt pins (INT1 and INT2) can be programmed by the user through the I2C/SPI interface.



The Slave Address (SAD) associated to the MIS2DH is 001100xb.
The SDO/SA0 pin can be used to modify the less significant bit of the address.
If the SA0 pad is connected to the voltage supply, LSB is '1' (address 0011001b), else if it is connected to ground, the LSB value is '0' (address 0011000b).

 FOCUS	Project: XLBoard.PrjPcb	
	Schematic: IMU	Ver: 1.1
	Design by: M. Ferreira	Date: 17/07/2025
	Reviewed by: J. Evia	Sheet: 3 / 3