



INTEL-IRRIS

Intelligent Irrigation System for Low-cost Autonomous Water Control
in Small-scale Agriculture



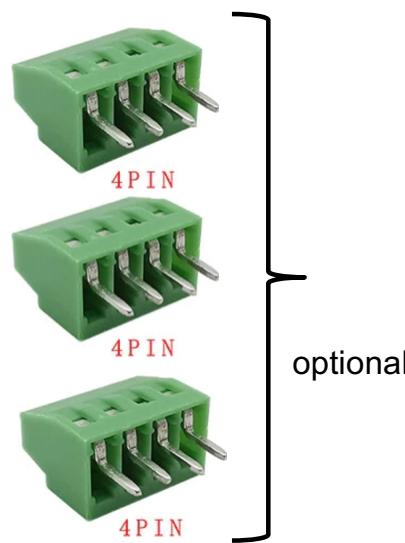
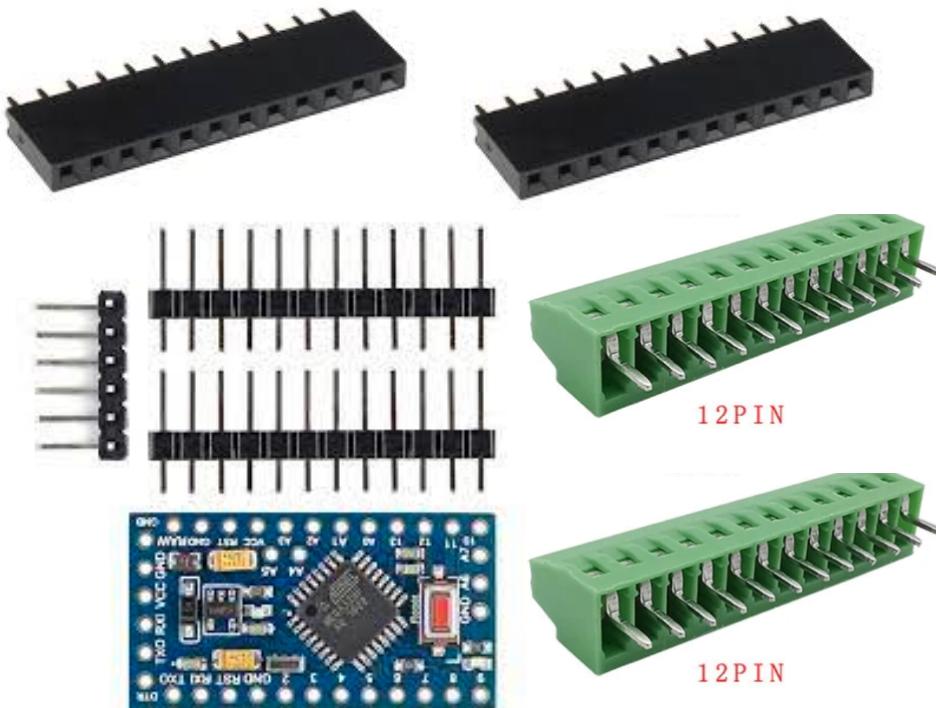
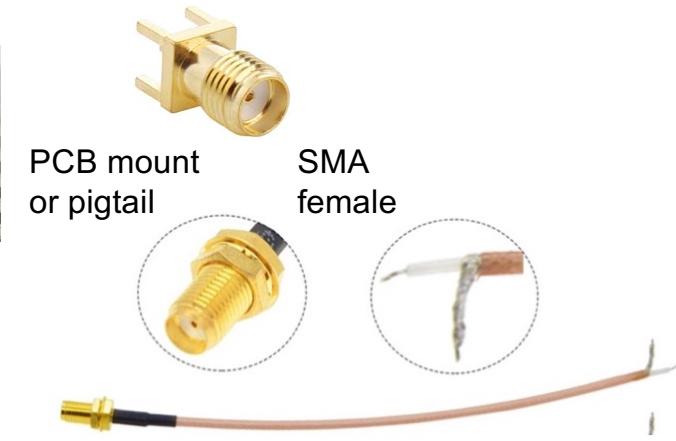
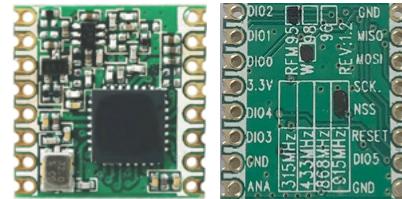
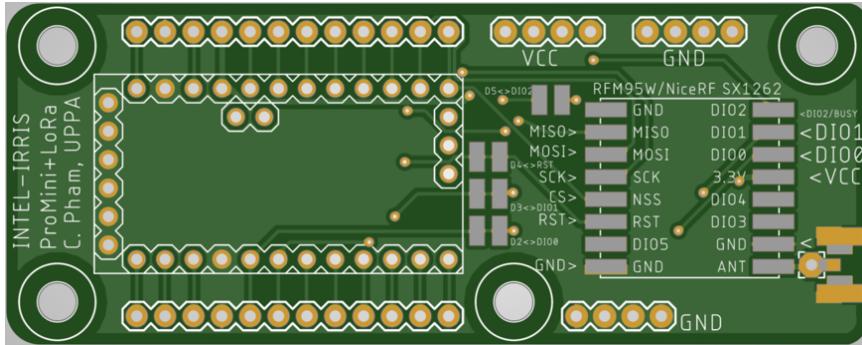
INTELLIGENT IRRIGATION SYSTEM FOR LOW-COST AUTONOMOUS WATER CONTROL IN SMALL-SCALE AGRICULTURE



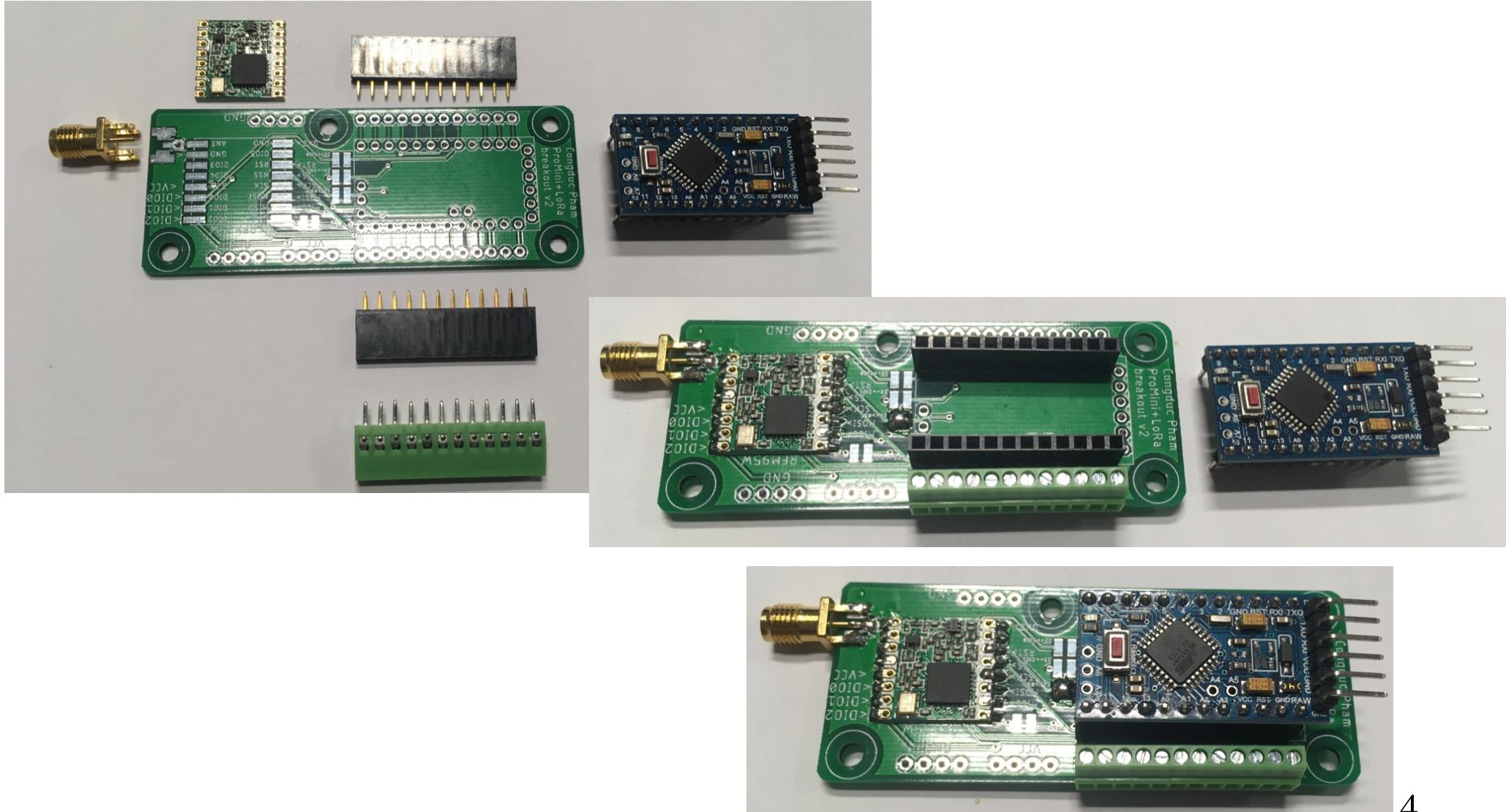
Building the Intel-IrriS IoT platform Annex-1: ordering PCBs



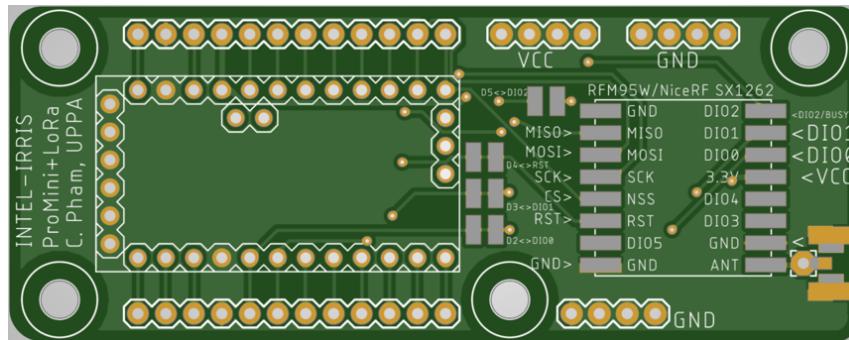
Soil sensor: electronic parts



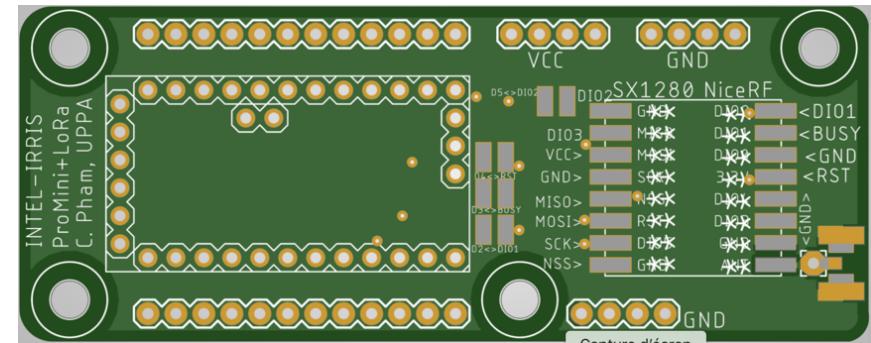
The PCB board will ease assembly



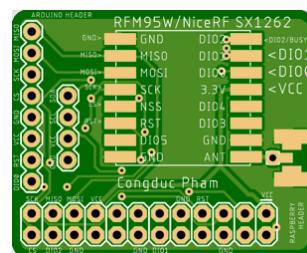
4 PCBs can be ordered



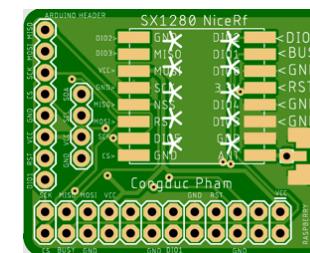
Arduino ProMini with
RFM95W (868MHz)
RFM96W (433MHz)
NiceRF SX1262 (868MHz)



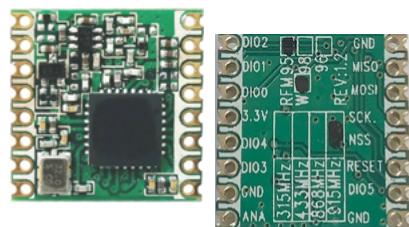
Arduino ProMini with
NiceRF SX1280 (2.4GHz)



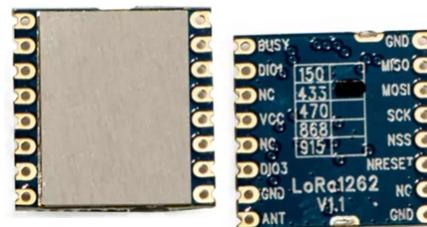
RFM95W
RFM96W
NiceRF SX1262
breakout



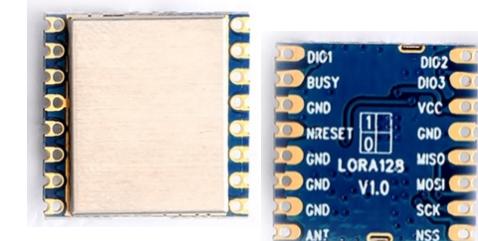
NiceRF SX1280
breakout



RFM95W (868MHz) | RFM96W (433MHz)



NiceRF SX1262 (868MHz)

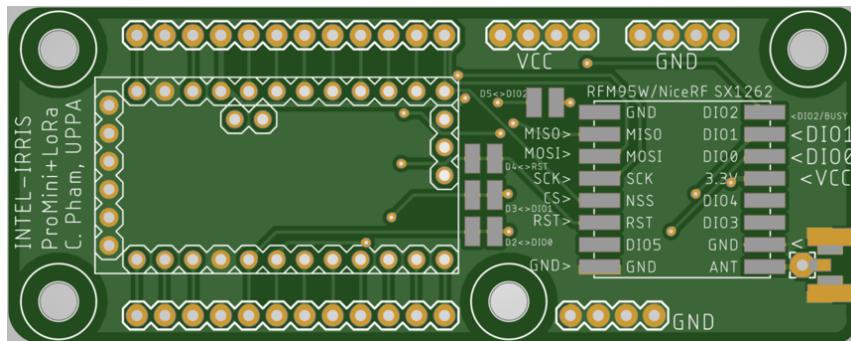


NiceRF SX1280 (2.4GHz)

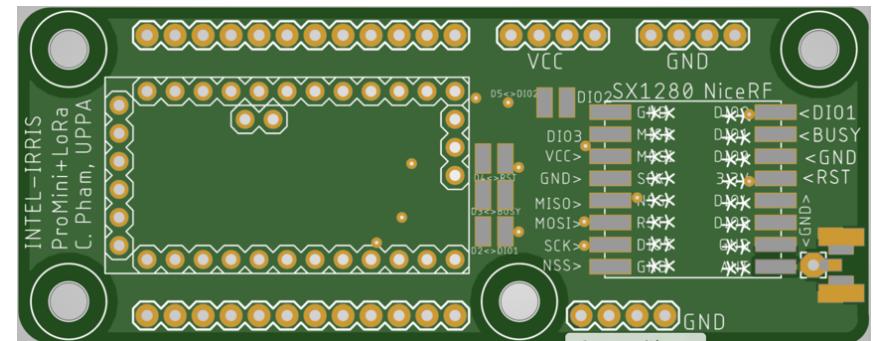
Download ProMini PCBs Gerber files Int

- <https://github.com/CongducPham/PRIMA-Intel-IrriS/tree/main/PCBs>

PRIMA-Intel-IrrIIS / PCBs /		
	CongducPham	Update PCB files
..		
	MySecondProMiniLoRaBreakout_2022-01-20.zip	Update PCB files
	MySecondProMiniLoRaBreakout_SX128X_2022-01-20...	Update PCB files
	README.md	Update PCB files



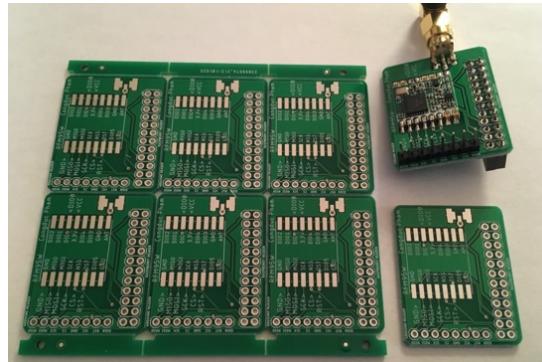
<https://github.com/CongducPham/PRIMA-Intel-IrrIS/raw/main/PCBs/MySecondProMiniLoRaBreakout-2022-01-20.zip>



https://github.com/CongducPham/PRIMA-Intel-IrrIS/raw/main/PCBs/MySecondProMiniLoRaBreakout_SX128X_2022-01-20.zip

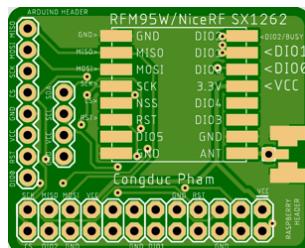
Download radio PCB breakouts

- The radio PCB breakouts are for the RPI-based IoT gateway



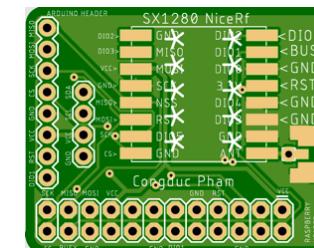
- <https://github.com/CongducPham/LowCostLoRaGw/tree/master/PCBs>

RFM95W
RFM96W
NiceRF SX1262
breakout



https://github.com/CongducPham/LowCostLoRaGw/blob/master/PCBs/RFM95Breakout_2020-11-14.zip

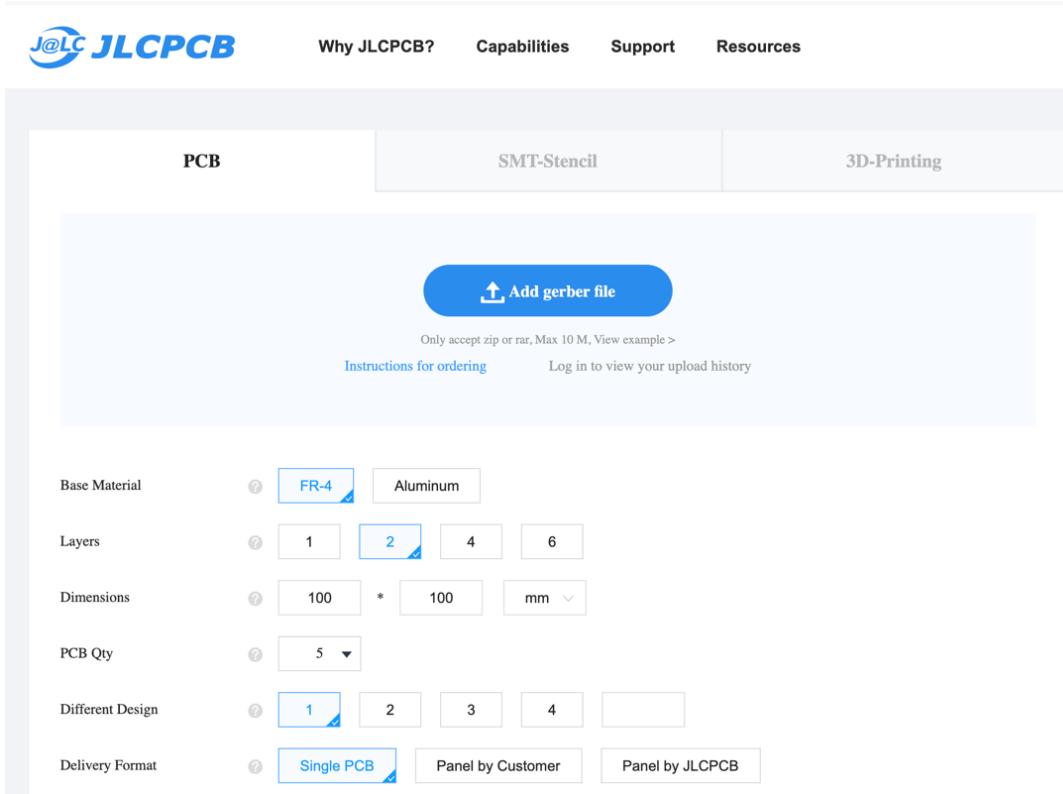
NiceRF SX1280
breakout



https://github.com/CongducPham/LowCostLoRaGw/blob/master/PCBs/SX1280Breakout_2020-11-14.zip

Manufacture the PCBs

- Example: JLCPCB: <https://jlpcb.com/>
- Click on "Instant Quote"

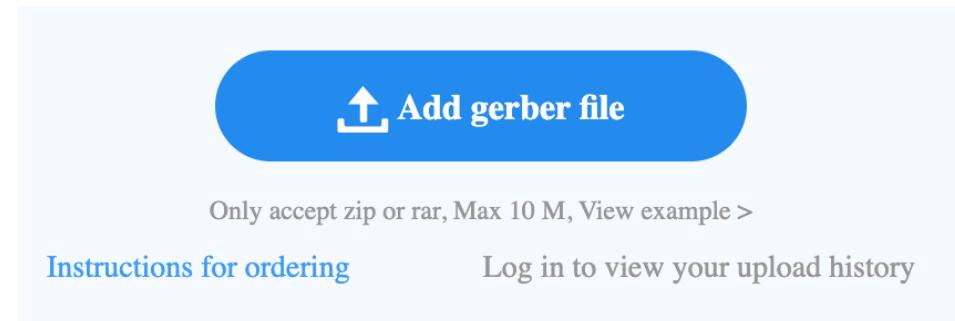


The screenshot shows the JLCPCB Instant Quote interface. At the top, there are tabs for PCB, SMT-Stencil, and 3D-Printing. Below the tabs is a large input field with a blue 'Add gerber file' button containing an upward arrow icon. Underneath the input field, it says 'Only accept zip or rar, Max 10 M, View example >' and links for 'Instructions for ordering' and 'Log in to view your upload history'. The main configuration area includes the following fields:

- Base Material: FR-4 (selected)
- Layers: 1, 2 (selected), 4, 6
- Dimensions: 100 * 100 mm
- PCB Qty: 5
- Different Design: 1 (selected), 2, 3, 4
- Delivery Format: Single PCB (selected)

Add your PCB Gerber files

- Click "Add gerber files" and select one of the PCB .zip file, do not unzip the downloaded file



Processing Gerber files...



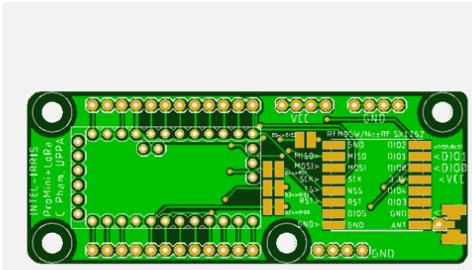
PCB parameters

- Some parameters will be defined by the Gerber file itself

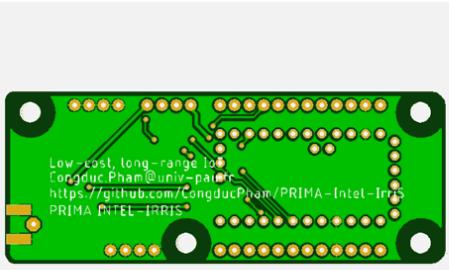
PCB SMT-Stencil 3D-Printing

Detected 2 layer board of 30.47x77.2mm(1.2x3.04 inches).

Your upload has finished processing. Enter the project details below and we'll move on to checking all the individual layers to make sure that they're correct.



INTEL-IRRIS
PrIMini-LoRa
C Pham UPnA



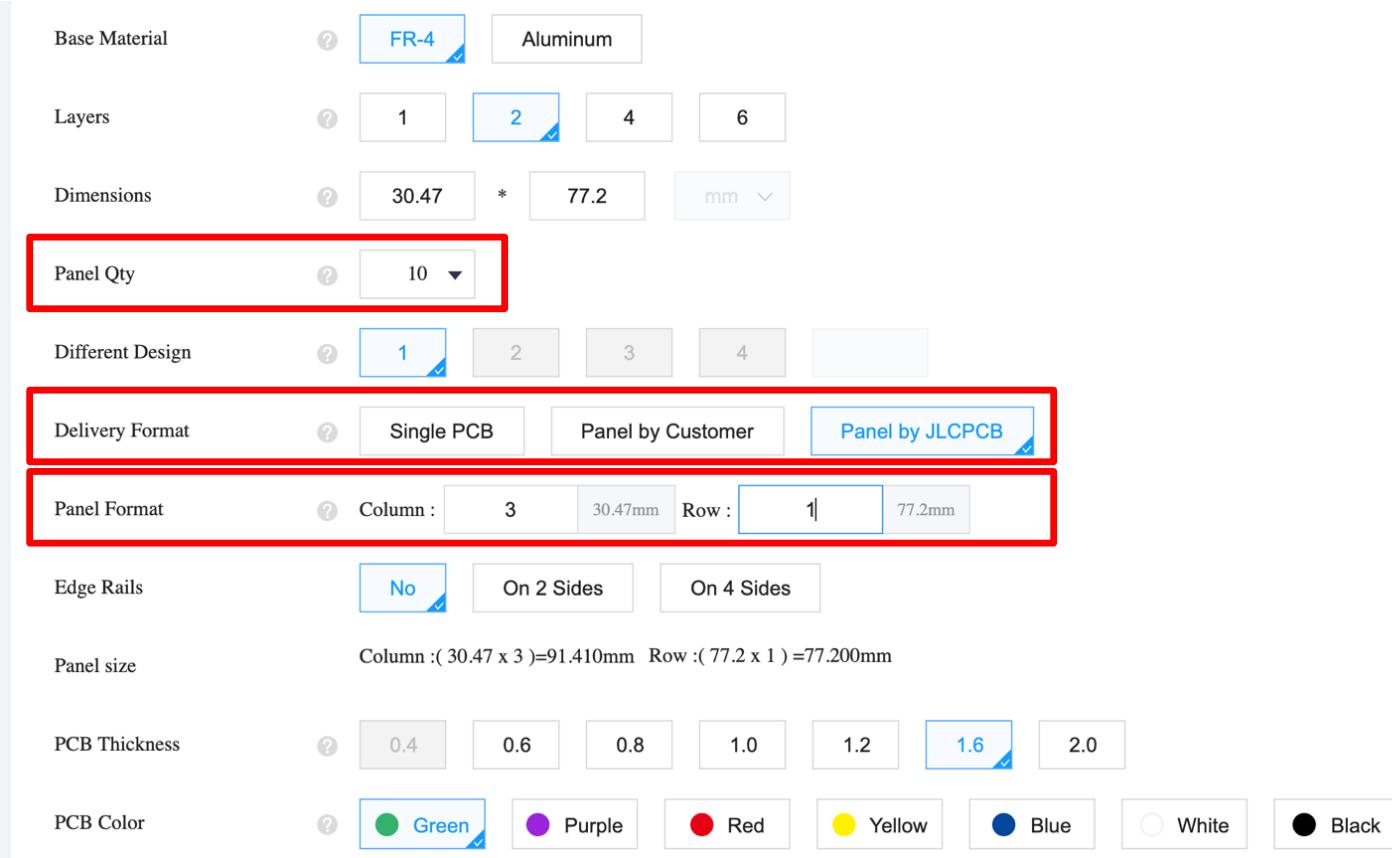
Low-cost, long-range IoT
Congduc Pham@univ-pau.fr
<https://github.com/CongducPham/PRIMA-Intel-IrrIS>

[← Back to Upload File](#) [Gerber Viewer](#)

Base Material	<input type="radio"/> FR-4	<input type="radio"/> Aluminum			
Layers	<input type="radio"/> 1	<input checked="" type="radio"/> 2	<input type="radio"/> 4	<input type="radio"/> 6	
Dimensions	<input type="radio"/> 30.47	*	<input type="radio"/> 77.2	<input type="radio"/> mm	
PCB Qty	<input type="radio"/> 5				
Different Design	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/>

Quantity and Panel format

- Change "Panel Qty" to 10 for instance and select "Panel by JLCPCB"
- Indicate 3 by 1



Base Material: FR-4 (selected)

Layers: 1, 2 (selected), 4, 6

Dimensions: 30.47 * 77.2 mm

Panel Qty: 10 (highlighted)

Different Design: 1 (selected)

Delivery Format: Single PCB, Panel by Customer, Panel by JLCPCB (highlighted)

Panel Format: Column : 3, Row : 1 (highlighted)

Edge Rails: No (selected)

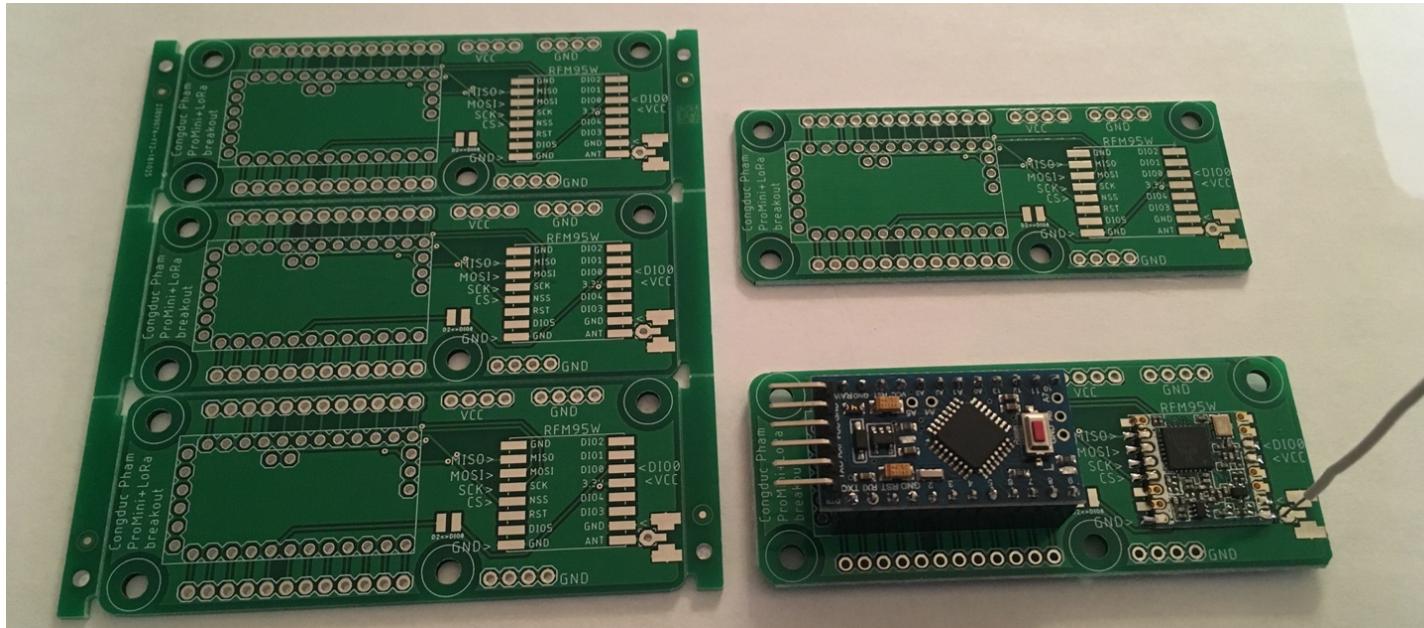
Panel size: Column : (30.47 x 3) = 91.410mm Row : (77.2 x 1) = 77.200mm

PCB Thickness: 0.4, 0.6, 0.8, 1.0, 1.2, 1.6 (selected), 2.0

PCB Color: Green (selected), Purple, Red, Yellow, Blue, White, Black

What is "panelized"?

- Panelized will put several PCBs on the same PCB panel, with v-cut so that you will be able to easily separate them with hand
- For minimal cost, JLCPCB offers 10cmX10cm PCB panel
- Here 3 x 1 will give 3 PCBs per PCB panel



Use panelized to reduce cost

- For ProMini PCB, each panel will contain 3 PCB boards
- For radio breakout PCB, use 3 x 2 to have 6 PCB boards
- So if you indicate Quantity=10, you will have
 - $10 \times 3 = 30$ for the ProMini PCB boards
 - $10 \times 6 = 60$ for the radio breakout PCBs
- So select the quantity that you want

Save to cart

- You do not need to change the other parameters
- Save your board to cart
- Then, add another PCB .zip file and repeat the same procedure
- The shipping cost is probably the most expensive cost, so better to order all PCBs at the same time!
- You have several shipping option, you can select faster or cheaper options
- Once you are done, display your cart, review carefully your order and then checkout

Charge Details

Engineering fee	€3.54
Board	€5.22

Build Time ?

PCB :	2-3 days	€0.00
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Calculated Price €8.76

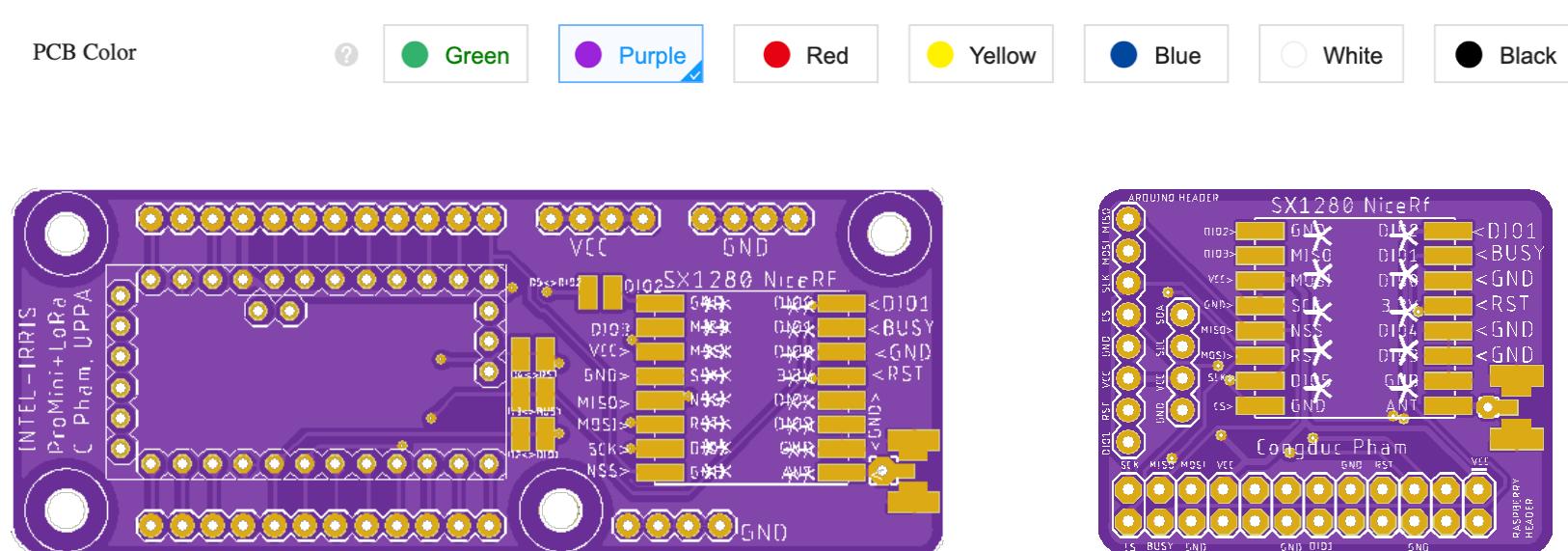
Additional charges may apply for special cases

Weight ? 0.23kg

SAVE TO CART

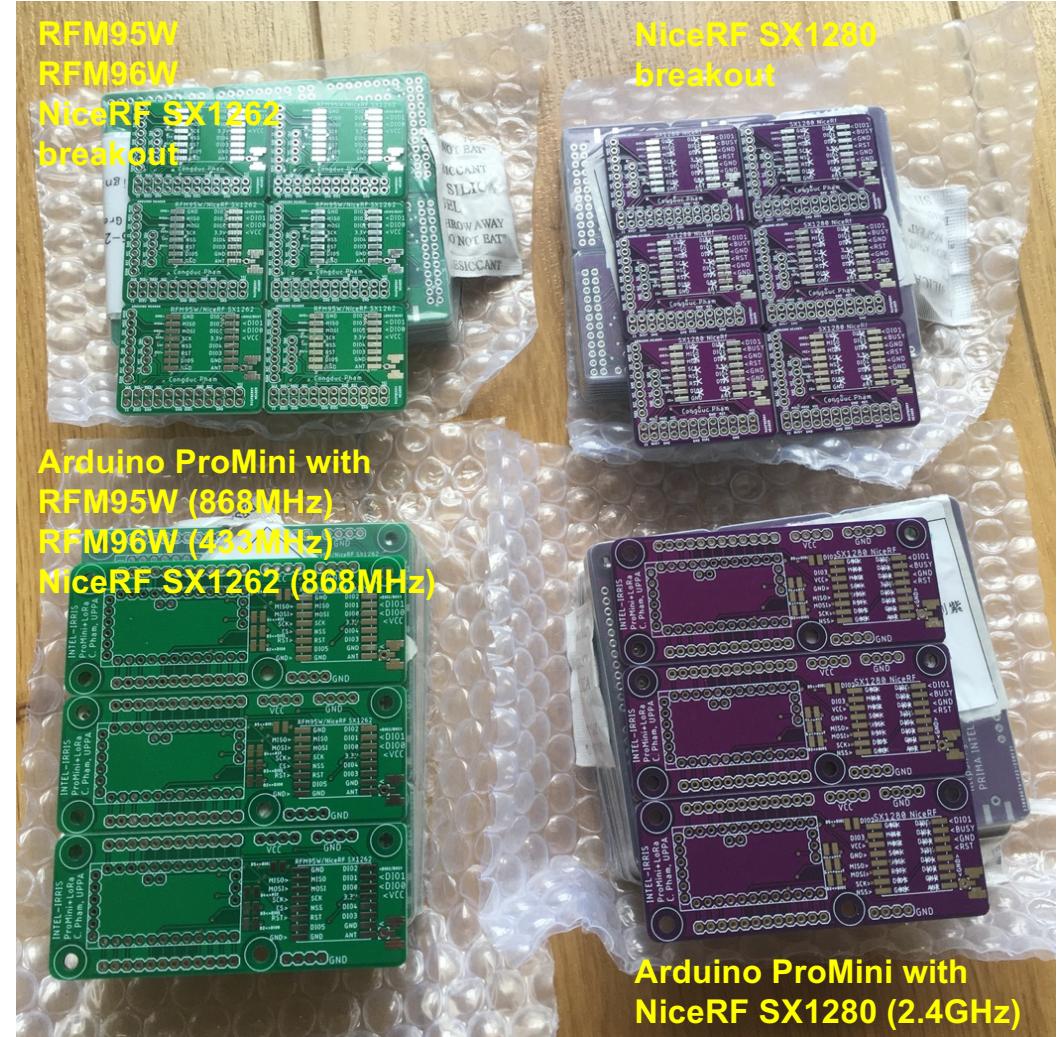
Shipping Estimate	€11.66
▼ EuroPacket	8-12 business days

- To better distinguish LoRa 2.4GHz boards from the other LoRa boards, I use purple color for the PCB



Receiving your PCBs!

➊ Finally they arrived!



Zoom on the ProMini PCB

