An Open Hardware/Software Solution for Focused CSB Data Collection

Brian R. Calder

Center for Coastal and Ocean Mapping & NOAA-UNH Joint Hydrographic Center
University of New Hampshire, Durham, NH 03824, USA.

Ken Himschoot

SeaID, Ltd.

What's the

minimum-**cost**,

minimal-**functionality**,

data collection **SYSTEM** for CSB?

General Design Principles

Modular & Portable

- Adoptable by any sponsor organization
- Usable in any region

Independent

- Separate from commercial offerings
- Accepting of many data streams

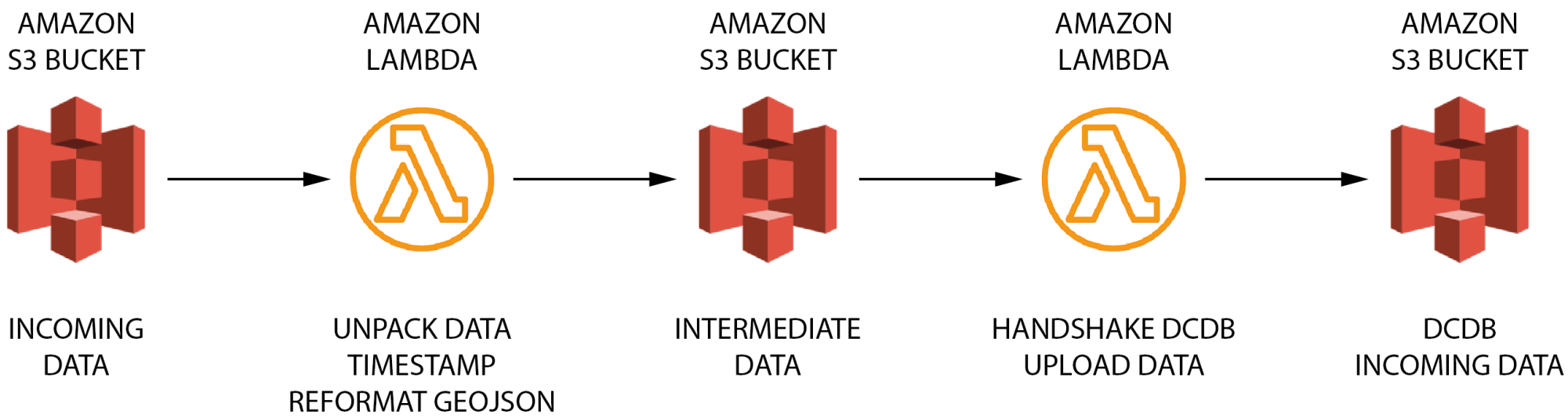
Frictionless Operations

- As simple as possible to make/use
- Minimal data collector interaction
- Local support person to facilitate
- Automated data transfer/processing

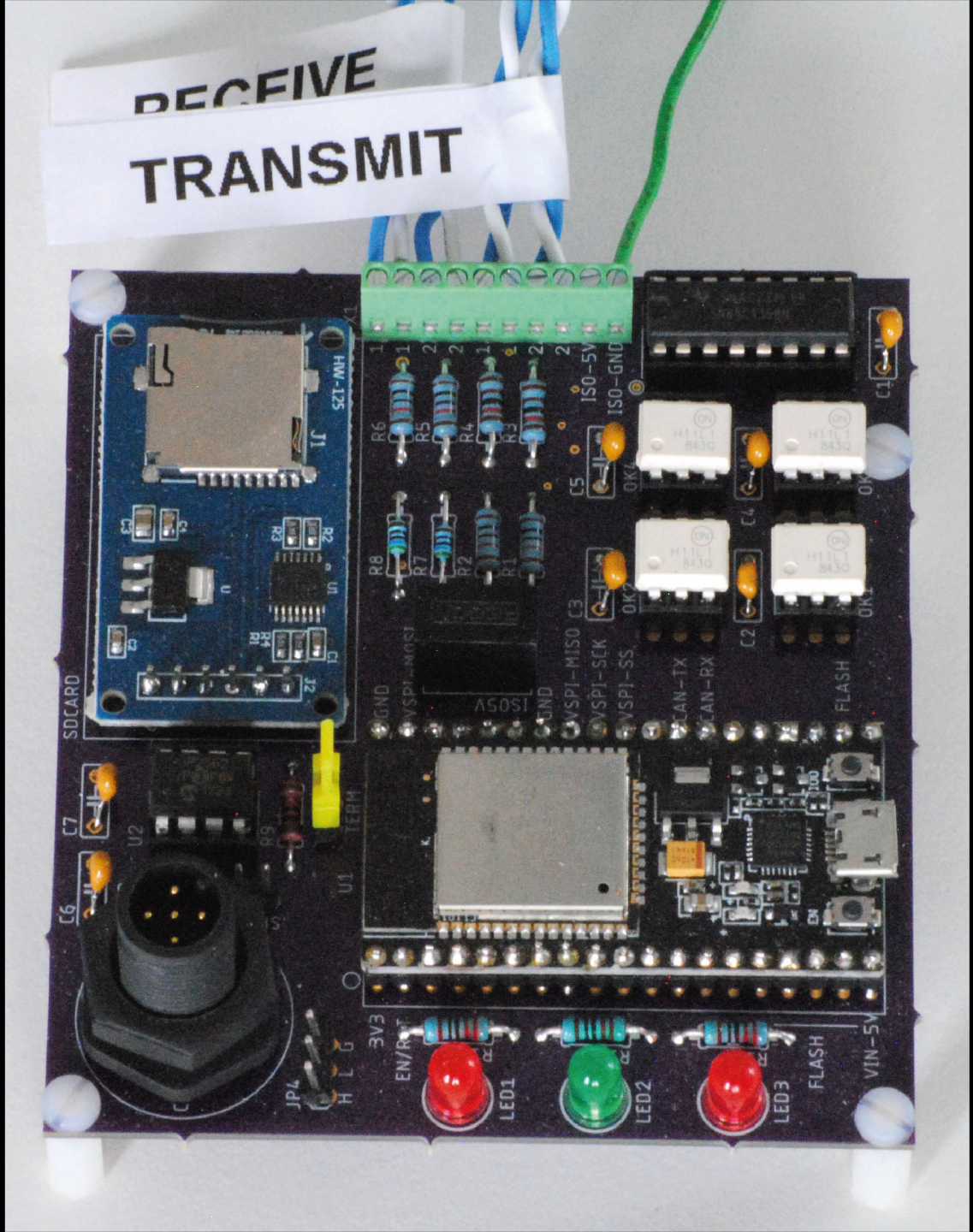
Cost-effective

- Hardware cheap enough to give away
- Generic software that can be repurposed [“Trusted Node In A Box”]
- Open Source Hardware and Software

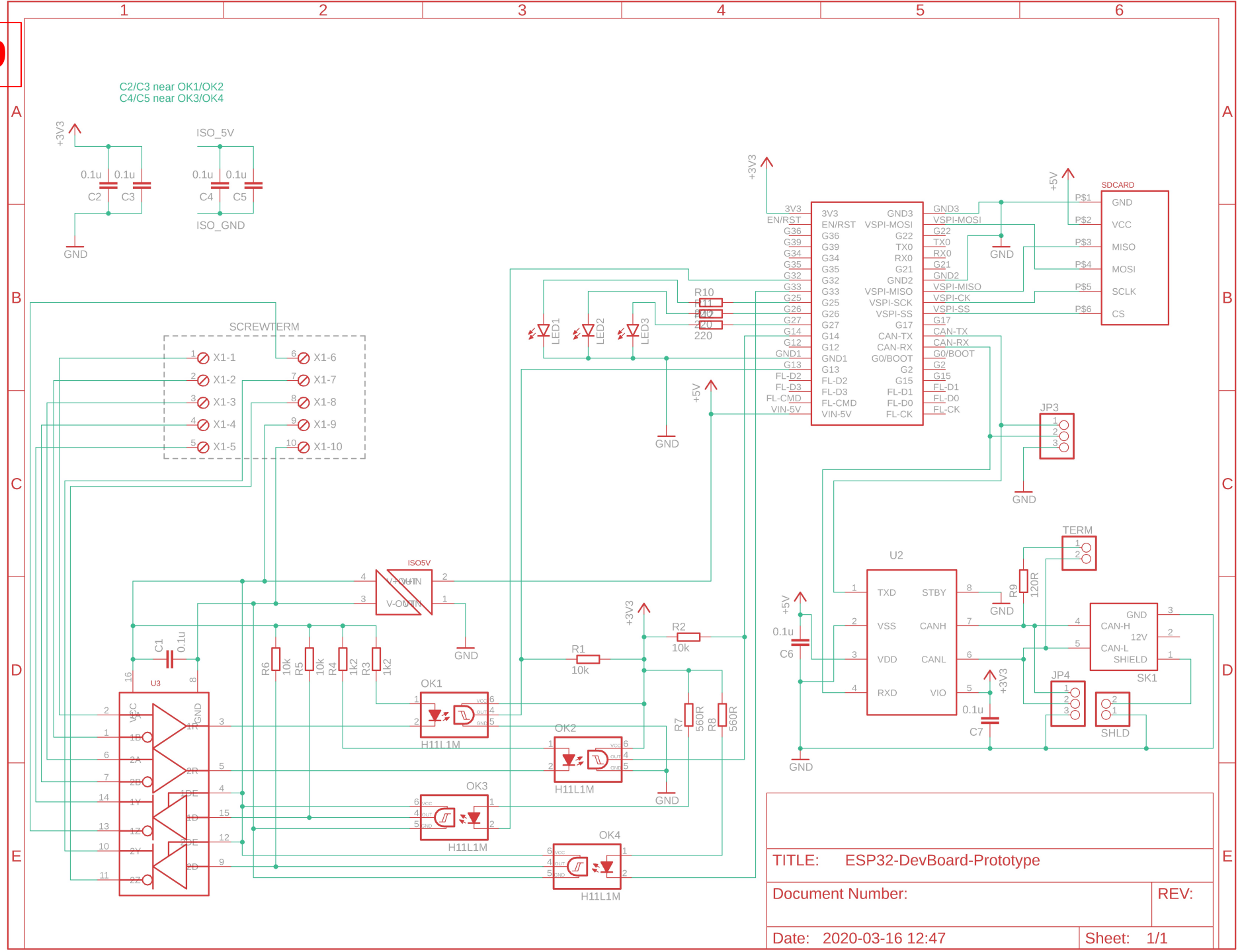
INSTALLED LOGGER
MOBILE DATA COLLECTION DEVICE
AMAZON WEB SERVICES API
INCOMING AMAZON S3 BUCKET
RECEIVE
TRANSMIT
COMMAND & CONTROL
DATA TRANSFER
Wi Fi
aws
LOCAL SUPPORT PERSONNEL


AMAZON S3 BUCKET
AMAZON LAMBDA
AMAZON S3 BUCKET
AMAZON LAMBDA
AMAZON S3 BUCKET
INCOMING DATA
UNPACK DATA
TIMESTAMP
REFORMAT GEOJSON
INTERMEDIATE DATA
HANDSHAKE DCDB
UPLOAD DATA
DCDB INCOMING DATA

CSBWG9


RECEIVE
TRANSMIT
SDCARD
HW-125
J1
J2
U1
U2
R1
R2
R3
R4
R5
R6
R7
R8
R9
C1
C2
C3
C4
C5
C6
C7
ISO-5V
ISO-GND
OK0
OK1
OK2
OK3
ISO5V
GND
VSPI-MOSI
VSPI-MISO
VSPI-SCK
VSPI-SS
CAN-TX
CAN-RX
FLASH
TERM
JP4
3V3
EN/RST
LED1
LED2
LED3
FLASH
VIN-5V

CSBWG9



TITLE: ESP32-DevBoard-Prototype

Document Number:

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Date: 2020-03-16 12:47

Sheet: 1/1

open source hardware

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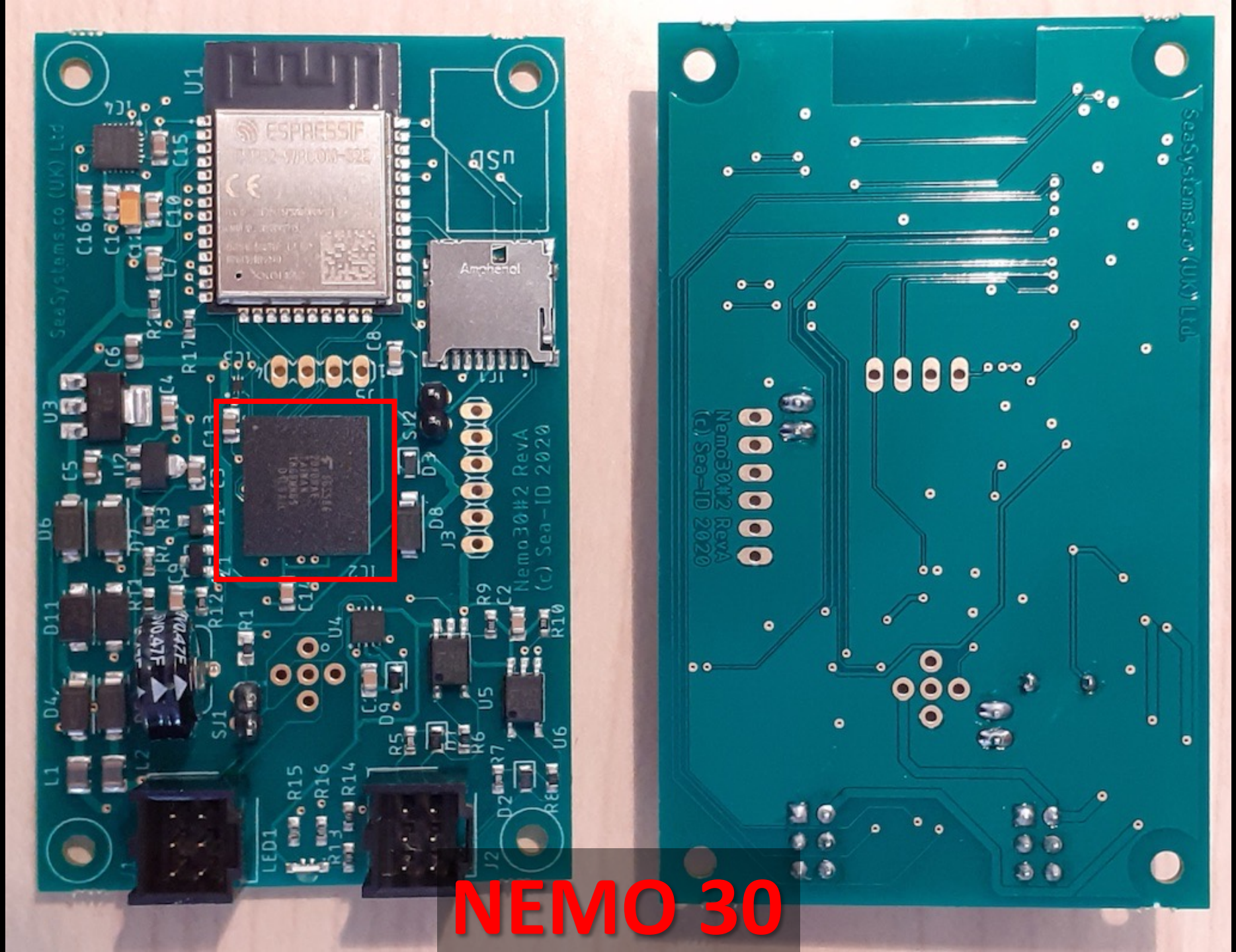
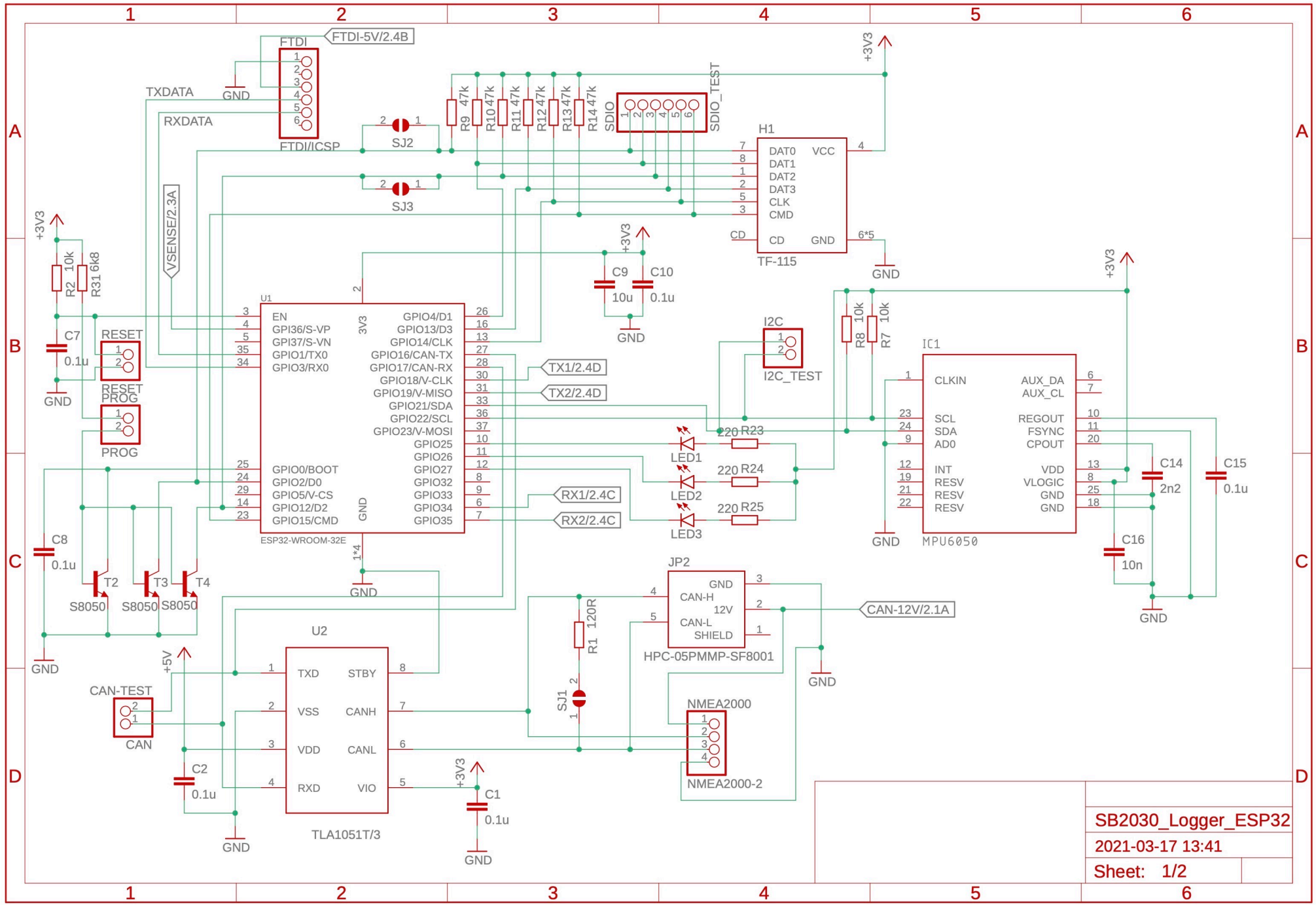
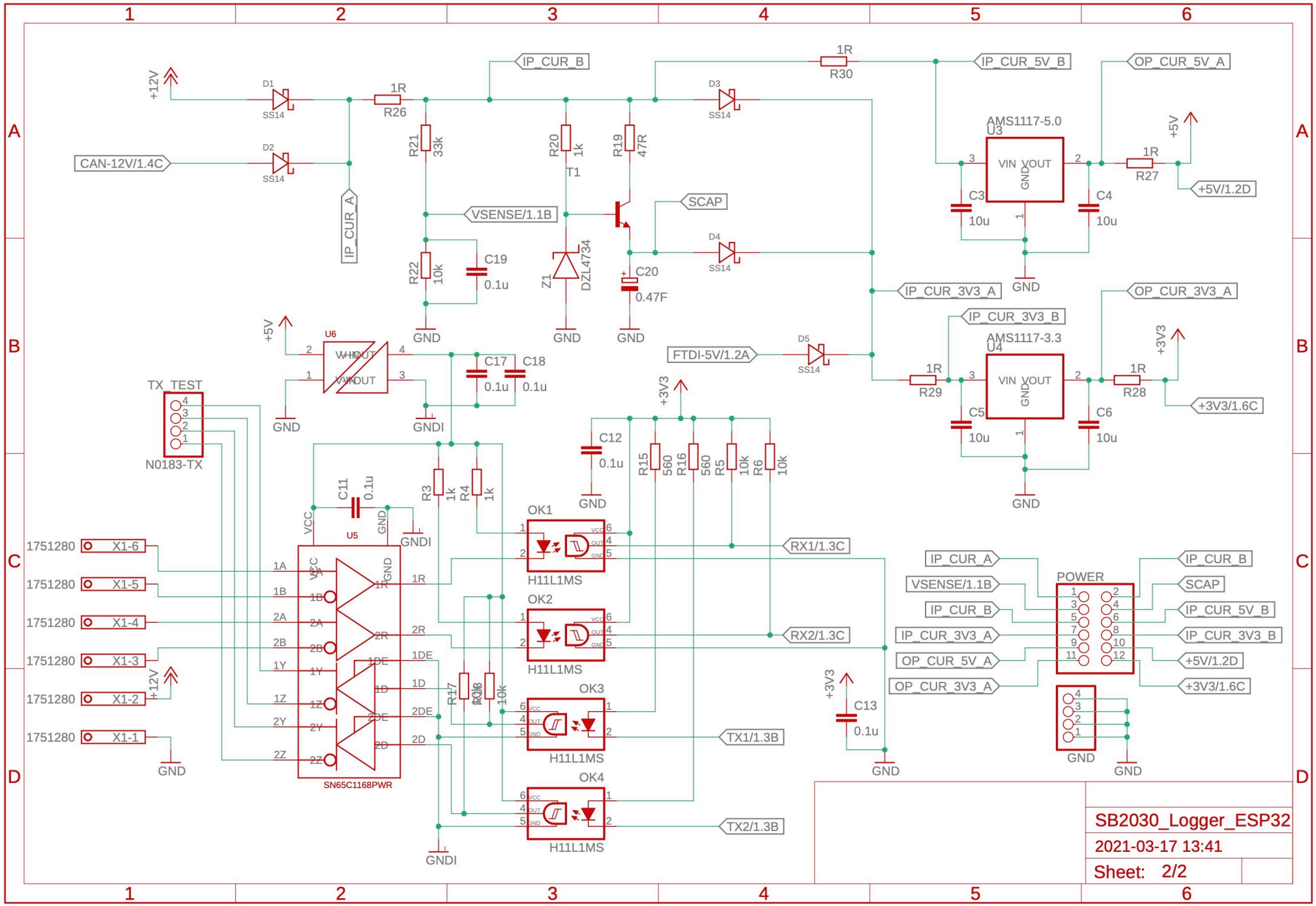


NEMO 30

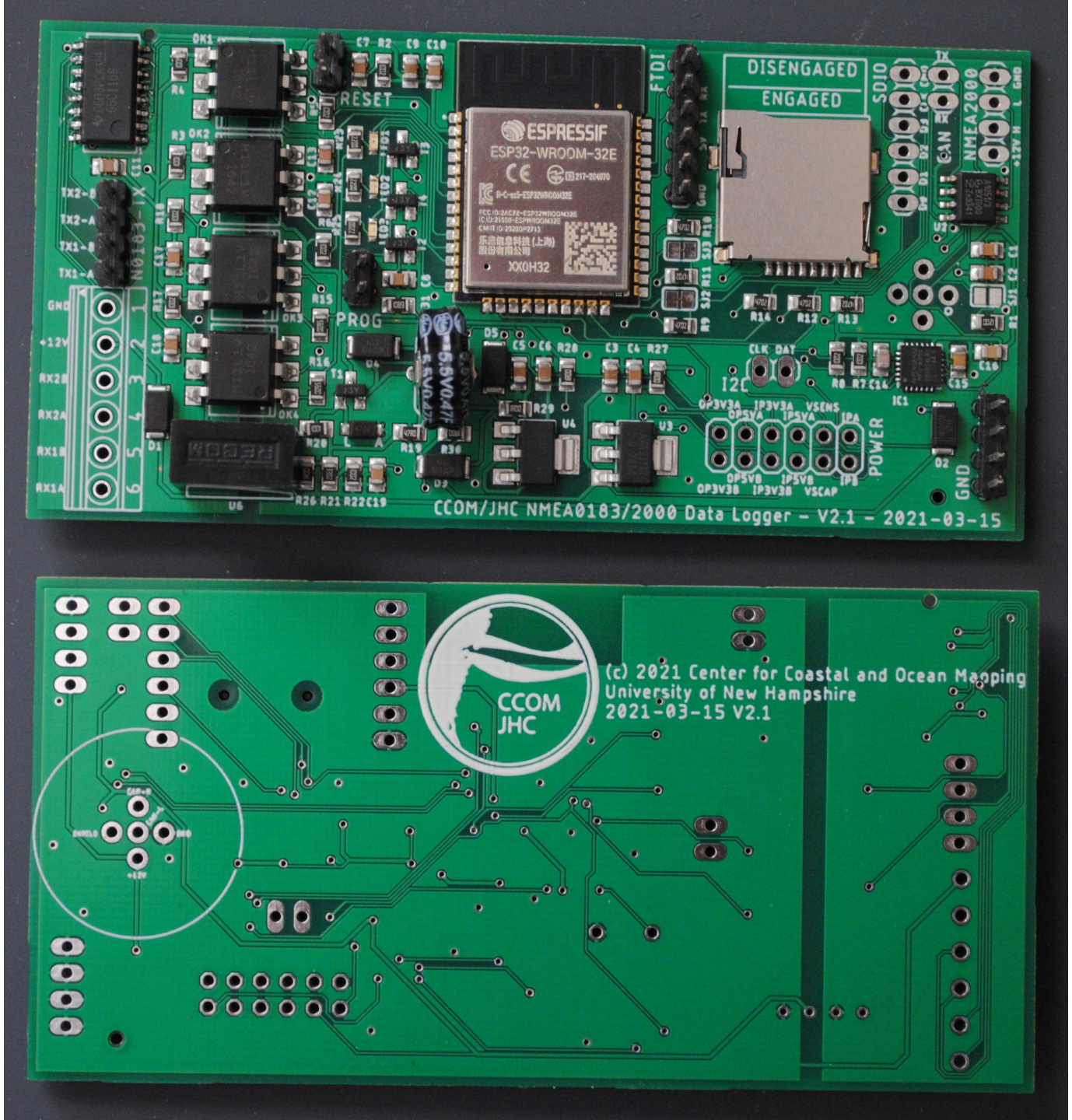
Sea ID



open source hardware



open source hardware



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open source hardware

- Support for Over-the-Air updates to firmware
- Support for SDIO or SPI storage
- Support for motion sensor logging
- Optional logging on all sensor interfaces
- Added power-supply monitoring and auto-shutdown
- Support for NEMO-30 specific interfaces
- More robust AWS upload (and test GUI integration)
- Configuration instructions for AWS setup (“Trusted Node in a Box”)
- Moved to public repository and wiki

```
git clone https://bitbucket.org/brian_r_calder/sb2030logger.git
```

TCP Socket Terminal

Server Connection

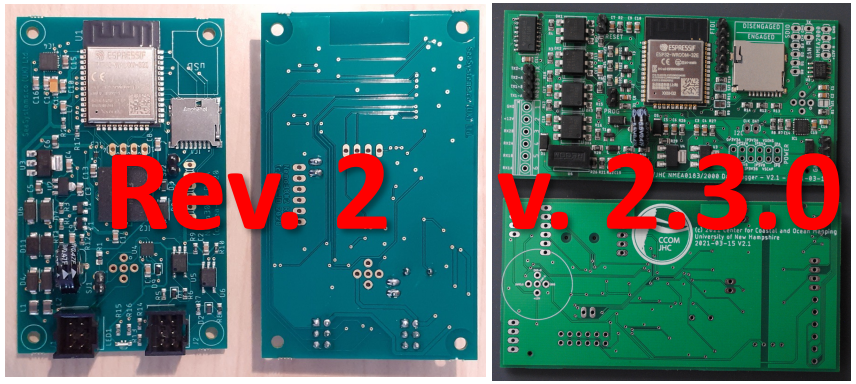
Address: 192.168.4.1

Port: 25443

Start Connection

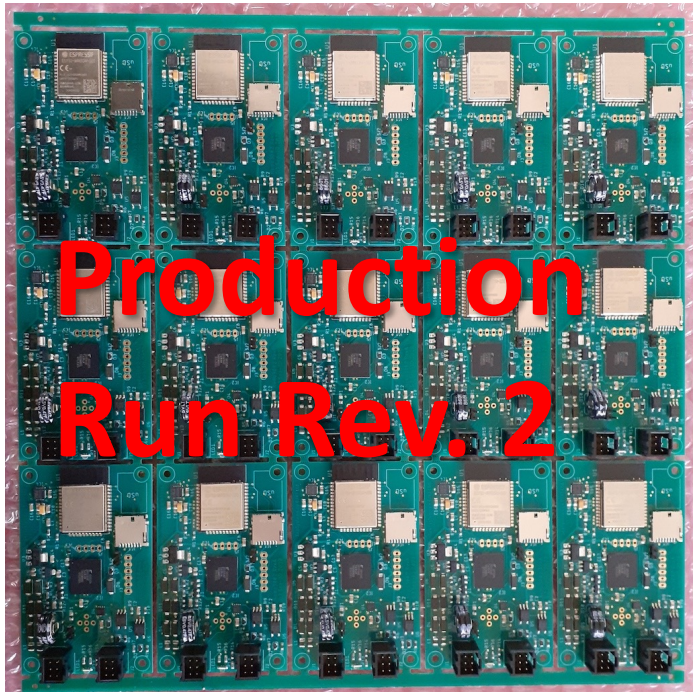
```
$ sizes
Current log file sizes:
   /logs/nmea2000.0 24 B
   /logs/nmea2000.1 24 B
   /logs/nmea2000.2 24 B
   /logs/nmea2000.3 24 B
   /logs/nmea2000.4 24 B
   /logs/nmea2000.5 24 B
   /logs/nmea2000.6 24 B
   /logs/nmea2000.7 24 B
   /logs/nmea2000.8 24 B
   /logs/nmea2000.9 24 B
   /logs/nmea2000.10 24 B
   /logs/nmea2000.11 24 B
   /logs/nmea2000.12 24 B
   /logs/nmea2000.13 24 B
   /logs/nmea2000.14 24 B
   /logs/nmea2000.15 24 B
   /logs/nmea2000.16 24 B
   /logs/nmea2000.17 24 B
   /logs/nmea2000.18 45024 B
   /logs/nmea2000.19 2292 B
   /logs/nmea2000.20 6936 B
   /logs/nmea2000.21 13184 B
   /logs/nmea2000.22 75064 B
   /logs/nmea2000.23 6104 B
   /logs/nmea2000.24 70864 B
   /logs/nmea2000.25 24 B
   /logs/nmea2000.26 215205 B
   /logs/nmea2000.27 24 B
$ transfer 26
Binary transfer: 215205 bytes to "nmea2000.26".
Transferred 215205 bytes total.
```

Command:



Hardware Development

Software Development



Deployment & Testing

Brian R. Calder
Research Professor & Associate Director
Center for Coastal and Ocean Mapping & NOAA-UNH Joint Hydrographic Center
Chase Ocean Engineering Lab
University of New Hampshire
24 Colovos Road, Durham, NH 03824, USA

T: +1 603 862 0526
E: brc@ccom.unh.edu
Teams: brian.calder@unh.edu
Zoom: 825 642 4007

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