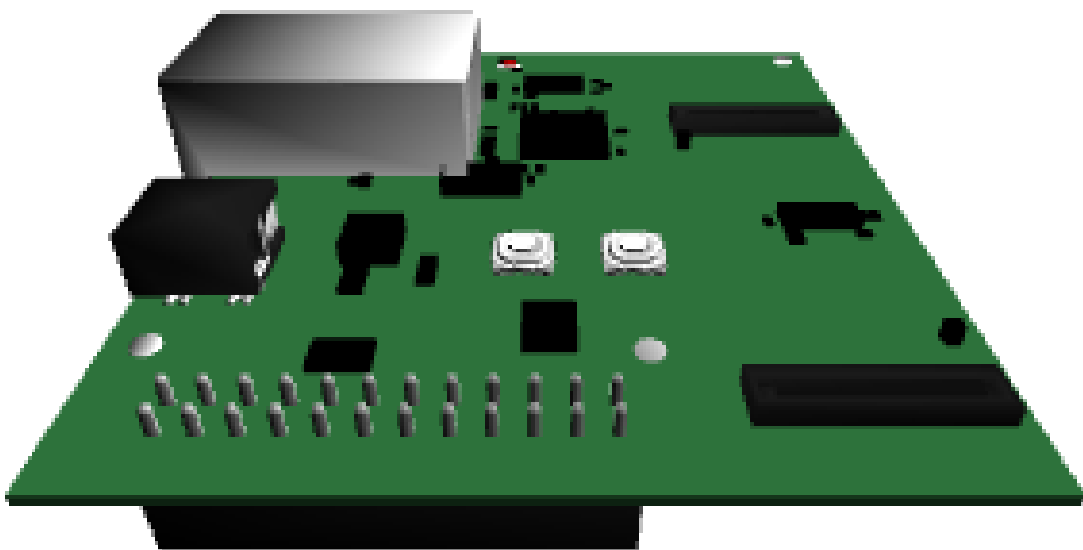


# Overo LoRa Gateway



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## Board Description

Overo LoRa Gateway

## Board Dimensions

6cm x 6.5cm

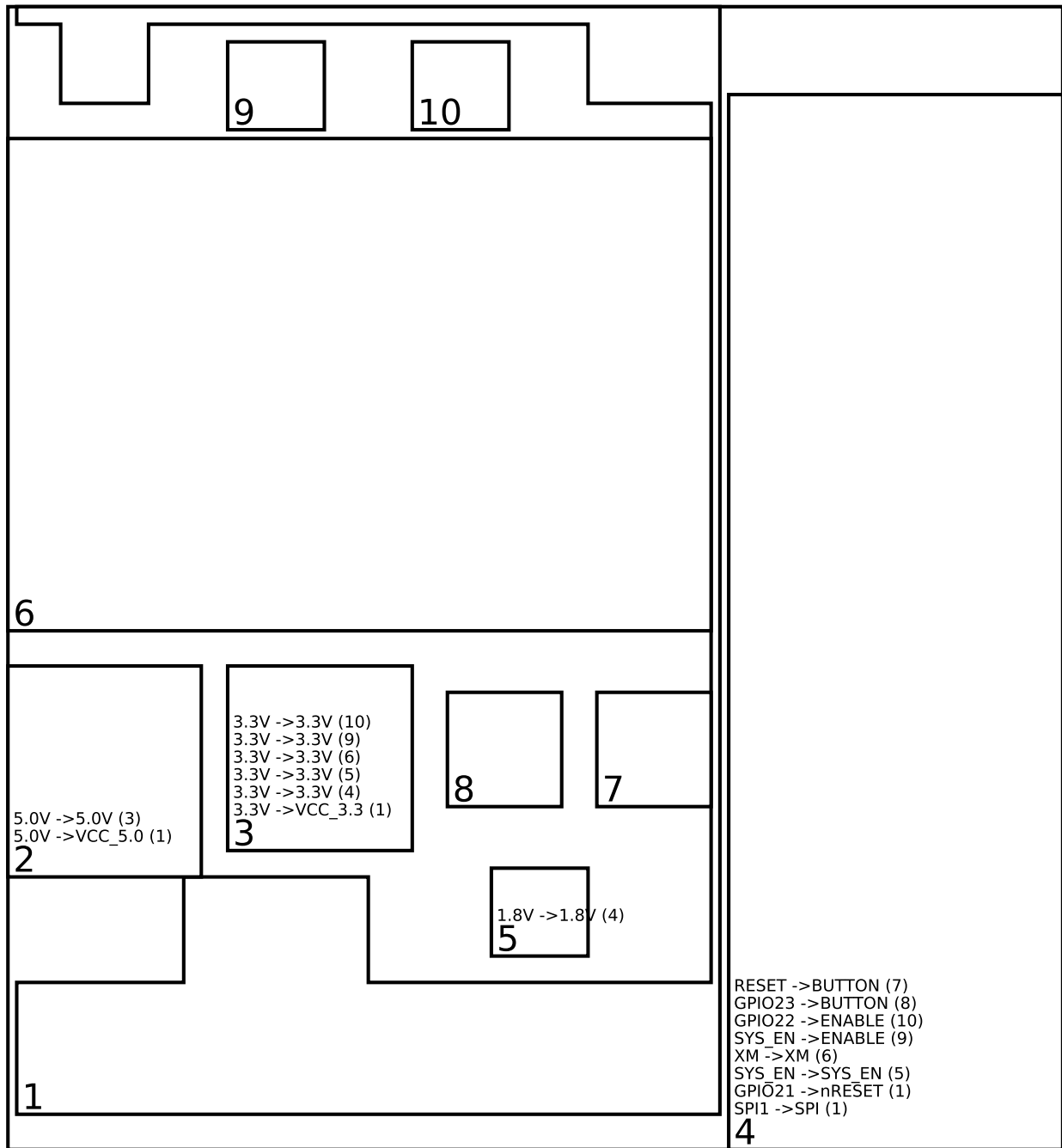


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# 1 Modules on Board



## 1.1 Network

### 1.1.1 LoRa Gateway and Concentrator Module (v1) (1)

LoRa Gateway



### 1.1.2 10/100BASE-T (v10) (6)

This design offers a 10/100 Base-T Ethernet connection. The PHY and MAC layers are provided by the SMSC LAN9221 10/100 ethernet controller.

The datasheet for the SMSC LAN9221 controller is available from Microchip at:

<http://ww1.microchip.com/downloads/en/DeviceDoc/9221.pdf>

The 10/100BASE-T module provides ethernet to XM on Gumstix - Overo COM Connector (4).

## 1.2 Power Connectors

### 1.2.1 Barrel Connector (5V 3A) (v7) (2)

This power jack is compatible with Gumstix 5V/3.5A DC power adapter using a 4.0mm x 1.7mm barrel connector. It provides more current than a standard 5V DC power supply, suitable for use with multi-processor designs.

This power jack provides 5V to the following modules:

- LoRa Gateway and Concentrator Module (1)
- 3.3V/1.5A Regulator (3)

## 1.3 Power

### 1.3.1 3.3V/1.5A Regulator (v11) (3)

This DC to DC step down regulator provides a 3.3V DC output at 1.5A needed by certain components on this board. It is capable of accepting an input voltage between 3.1 to 16V DC and output is controlled by the TI TPS6211 buck regulator.

It receives 5.0V from Barrel Connector (5V 3A) (2).

The dataheet for the TPS6211 regulator is available at:

<http://www.ti.com/lit/ds/symlink/tps62110.pdf>

This regulator provides 3.3V to:

- LoRa Gateway and Concentrator Module (1)
- Gumstix - Overo COM Connector (4)
- 1.8V/0.6A Regulator (5)
- 10/100BASE-T (6)
- Top-side LED (9)
- Top-side LED (10)



### 1.3.2 1.8V/0.6A Regulator (v7) (5)

This DC-DC regulator has an integrated inductor and tiny footprint. The Enpirion EP5368QI provides power to modules that require a 1.8V input.

It receives 3.3V from 3.3V/1.5A Regulator (3). A SYS\_EN signal is provided by Gumstix - Overo COM Connector (4).

The following modules receive 1.8V DC from this regulator:

- Gumstix - Overo COM Connector (4)

## 1.4 COM Connectors

### 1.4.1 Gumstix - Overo COM Connector (v35) (4)

Each of these two 70-pin connectors (Kyocera Series 5602) accepts signals from computers-on-module in the Overo series; a total of 140 possible signals that can be interfaced using these connectors, such as GPIO, ADC, PWM, LCD, audio I/O, and HDMI, as well as USB, I2C, SPI, and other serial buses.

Documentation for Overo COMs can be found at: <https://goo.gl/eE9UKj>

Gumstix Developer Center:

<http://www.gumstix.org>

The Overo COM connector receives the following inputs:

- 3.3V from 3.3V/1.5A Regulator (3)
- 1.8V from 1.8V/0.6A Regulator (5)

The Overo COM connector provides the following outputs:

- SPI1 to LoRa Gateway and Concentrator Module (1)
- VLOGIC to:
  - LoRa Gateway and Concentrator Module (1)
  - 10/100BASE-T (6)
  - Tactile Switch (8)
  - Tactile Switch (7)
- GPIO21 to LoRa Gateway and Concentrator Module (1)
- SYS\_EN to:
  - 1.8V/0.6A Regulator (5)
  - Top-side LED (9)
- XM to 10/100BASE-T (6)
- GPIO22 to Top-side LED (10)
- GPIO23 to Tactile Switch (8)
- RESET to Tactile Switch (7)



## 1.5 IO

### 1.5.1 Tactile Switch (v16) (7)

This 4.9 sq. mm pull-down touch switch provides a user input for the signal RESET on Gumstix - Overo COM Connector (4).

### 1.5.2 Tactile Switch (v16) (8)

This 4.9 sq. mm pull-down touch switch provides a user input for the signal GPIO23 on Gumstix - Overo COM Connector (4).

### 1.5.3 Top-side LED (v4) (9)

The top-side LED module contains a 1608 standard size LED of a user-selected color, mounted on the top side of a Geppetto board.

The LED is active-high on SYS.EN from Gumstix - Overo COM Connector (4).

### 1.5.4 Top-side LED (v4) (10)

The top-side LED module contains a 1608 standard size LED of a user-selected color, mounted on the top side of a Geppetto board.

The LED is active-high on GPIO22 from Gumstix - Overo COM Connector (4).





## 2 Module Connections Graph

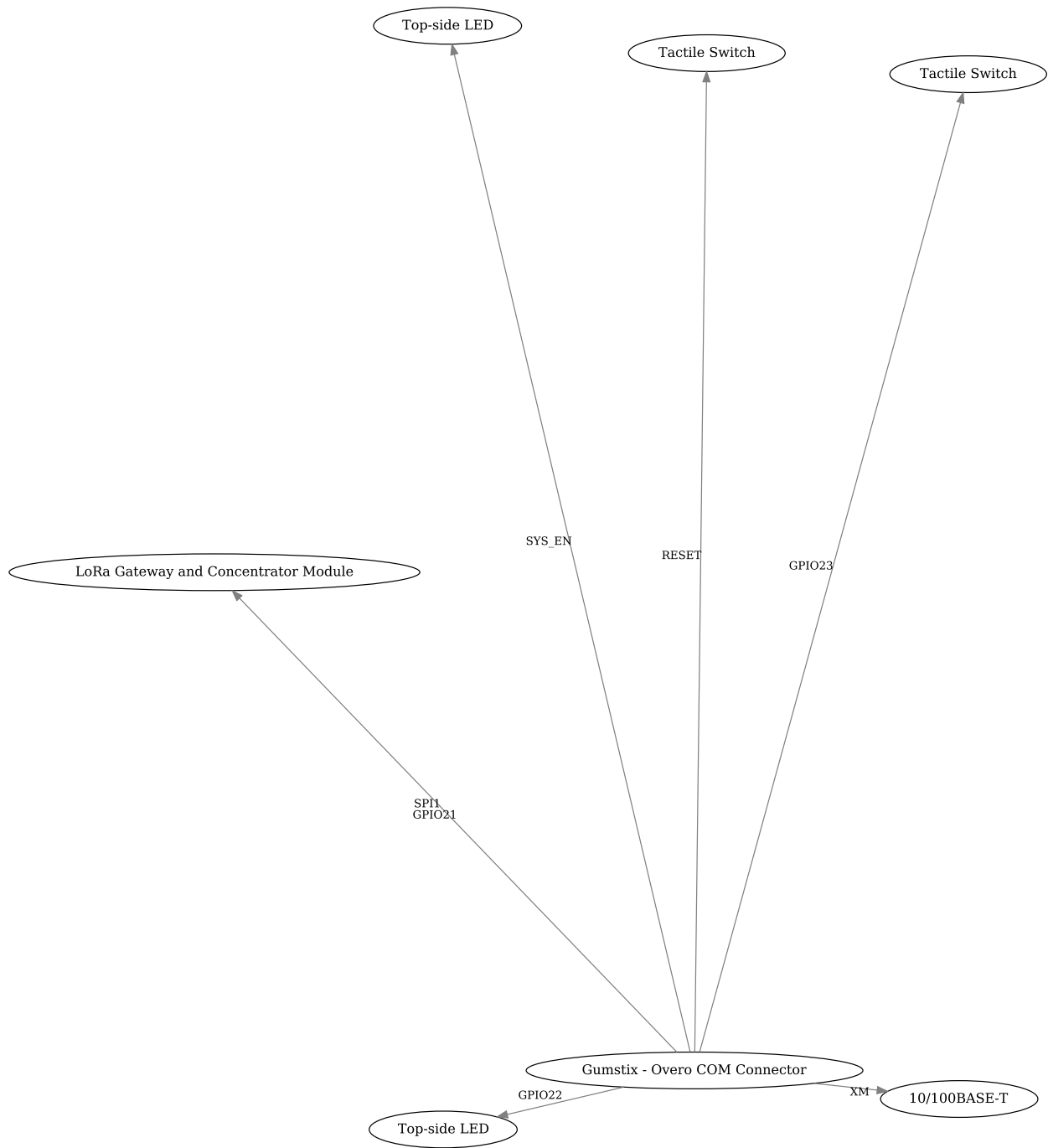
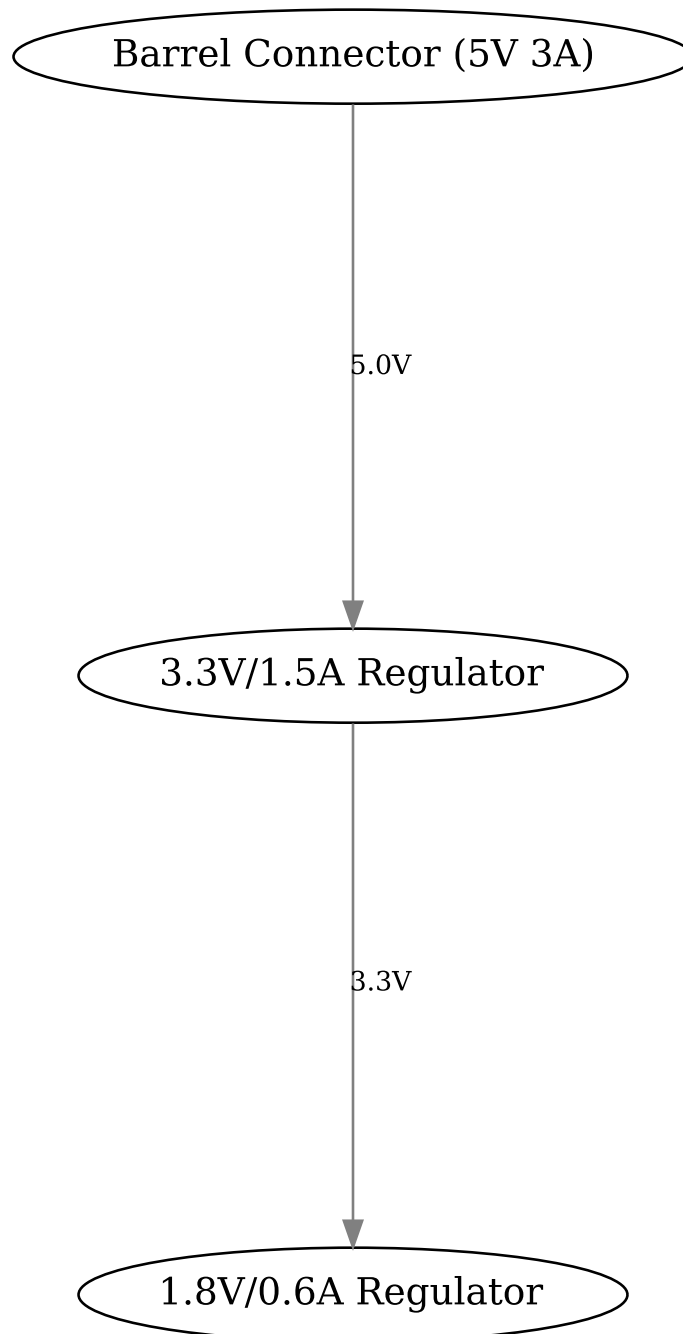


Figure 1: excludes power modules



### 3 Module Power Graph



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