BetaBoard Datasheet `Preliminary`

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18 Strip APA102 Multiplexer and Driver over RS485

1 Features

- Drives up to 18 Strips of 255 LEDs, totaling up to 4590 APA102 devices.

- Takes input using the RS485 protocol.

- Supports up to 40A continuous current driving the LEDS, with the ability to support much higher output currents with auxiliary power supplies.
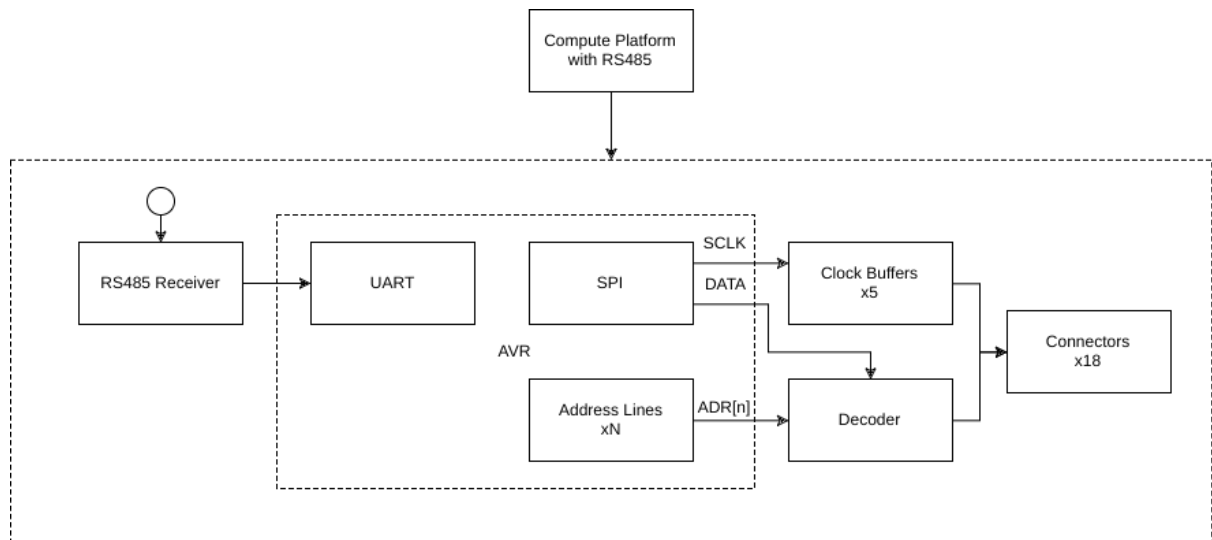

Figure 1: Block Diagram

1.1 Protocols

1.1.1 RS485 Data Packet Format

The RS485 Packet is sent from the compute platform to the BetaBoard. It contains the address of the board, the strip for which the LED data is for and the LED data.

```
ID[8] STRIP[8] DATA_LENGTH[8] LED1[24] LED2[24] ... LEDN[24]
```

Tag	Bits	Description
ID	8	Board ID
STRIP	8	Strip Address
DATA-LENGTH	8	Number of LEDs to be set from packet
LEDn	24	Three bytes for each color of each LED, in the format BGR

As an example setting 1 LED in strip `0x00` on board ID `0x00` to `0xFFFFFF`:

```
ID------- STRIP---- DATA_LEN- LED1------------------------
0000 0000 0000 0000 0000 0001 1111 1111 1111 1111 1111 1111
```