Trēo™ Raspberry Pi HAT Adapter

Adapter Features

- Adapts Trēo to Raspberry Pi Boards
- 8 Trēo™ Connectors
  - 4 I2C
  - 3 SPI
  - 3 GPIO
  - 1 UART
  - 1 SDIO
- RoHS Compliant

Trēo™ Compatibility

Electrical

Communication	I2C, SPI, UART, GPIO, SDIO
Supply Current, 3.3V	Max 300mA
Supply Current, 5V	Max 1000mA

Mechanical

Raspberry Pi Hat

- 65mm x 56mm Outline
- 58mm x 49mm Hole Pattern
- M3 Mounting Holes
- Raspberry Pi boards can be adapted to the Trēo™ 10mm grid with an Arduino plate adapter.

Description

The Trēo™ Raspberry Pi HAT Adapter provides Raspberry Pi boards with access to the entire Trēo™ development system. This module is a part of the NightShade Treo system, patent pending.

Table of Contents

1 What is Trēo™?

NightShade Trēo is a system of electronic modules that have standardized mechanical, electrical, and software interfaces. It provides you with a way to quickly develop electronic systems around microprocessor development boards. The grid attachment system, common connector/cabling, and extensive cross-platform software library allow you more time to focus on your application. Trēo is supported with detailed documentation and CAD models for each device.

Learn more about Trēo here.

2 Electrical Characteristics

	Minimum	Nominal	Maximum
Raspberry Pi Voltages			
$V_{i/o}$ (SDA, SCL, INT)	-0.3V	-	3.6V
$V_{3.3V}$	3.1V	3.3V	3.5V
V_{5V}	4.8V	5.0V	5.2V
Trēo Connector Voltages			
$V_{i/o}$ (SDA, SCL, INT)	-0.3V	-	3.6V
$V_{3.3V}$	3.1V	3.3V	3.5V
V_{5V}	4.8V	5.0V	5.2V
Operating Temperature	-25°C		-25°C

3 Electrical Connections

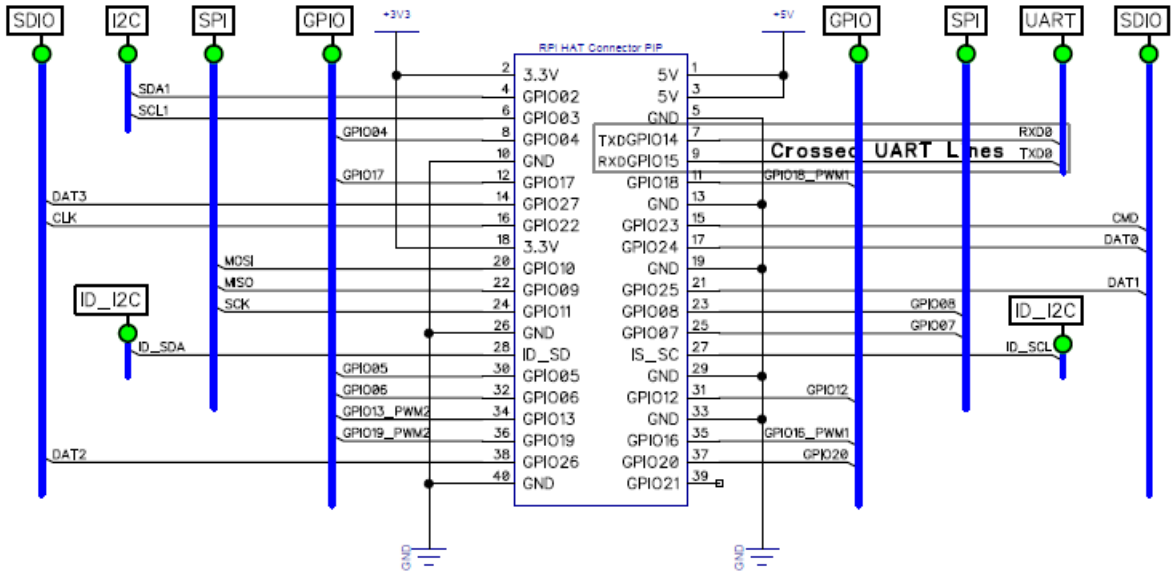
3.1 Communication

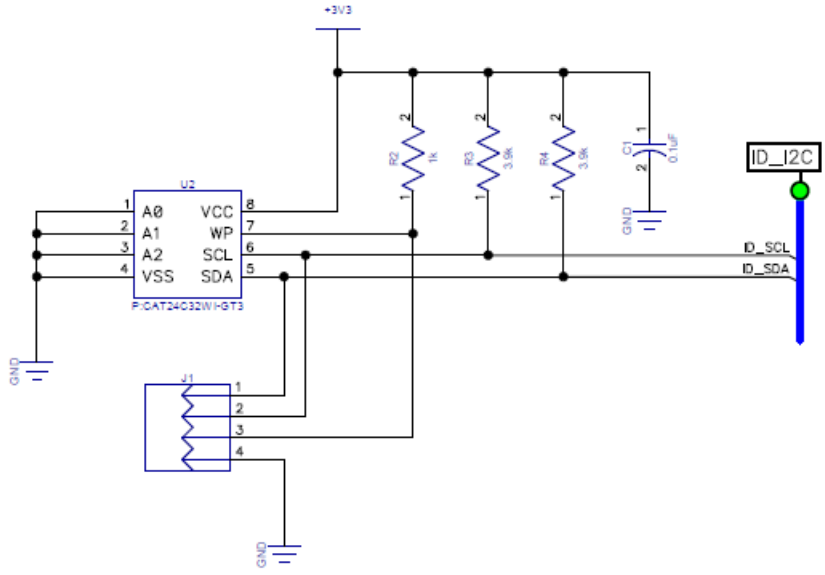
Trēo Connection	Signal	BCM Pin
I2C	SDA	GPIO 2
I2C	SCL	GPIO 3
SPI	MOSI	GPIO 10
SPI	MISO	GPIO 9
SPI	SCK	GPIO 11
SPI	CS0	GPIO 8
SPI	CS1	GPIO 7
SPI	CS2	GPIO 17
UART	TXD	GPIO 14
UART	RXD	GPIO 15
GPIO 0	GPIO0	GPIO 16
GPIO 0	GPIO1	GPIO 12
GPIO 1	GPIO0	GPIO 13
GPIO 1	GPIO1	GPIO 19
GPIO 2	GPIO0	GPIO 18
GPIO 2	GPIO1	GPIO 20
SDIO	DAT0	GPIO 24
SDIO	DAT1	GPIO25
SDIO	DAT2	GPIO26
SDIO	DAT3	GPIO27
SDIO	CLK	GPIO22
SDIO	CMD	GPIO23

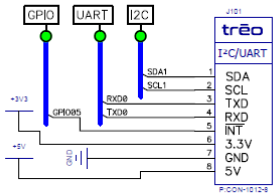
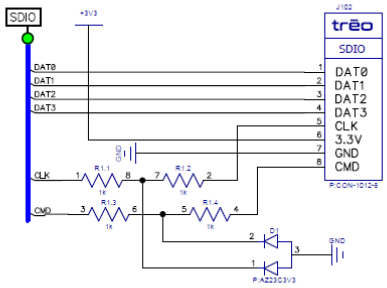
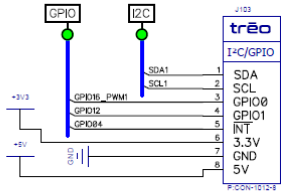
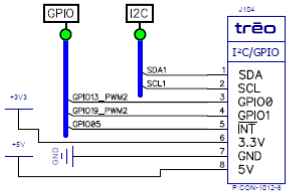
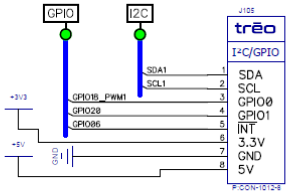
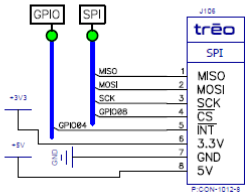
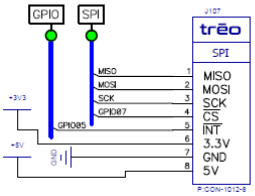
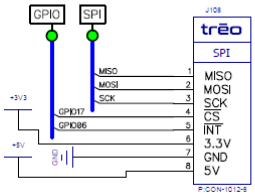
3.2 Interrupts

Interrupt	BCM Pin
INT0	GPIO4
INT1	GPIO5
INT2	GPIO6

4 Electrical Schematic





INT PIN:	GPIO04	GPIO05	GPIO06
			
			
			

5 Mechanical Outline