



PRODUCT DATASHEET

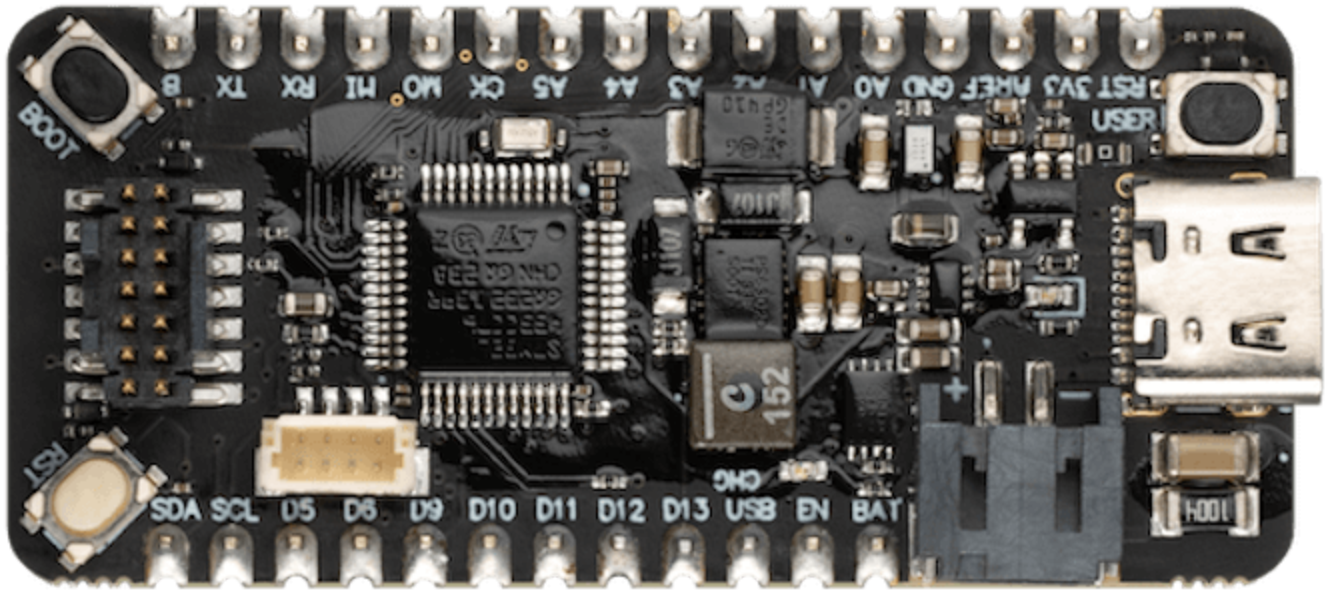
Cygnet Datasheet

Cygnet v1.2

Cygnet is a low-cost embeddable STM32L4+-based microcontroller board designed to accelerate the development and deployment of battery-powered IoT solutions.

Blues Cygnet™ Datasheet: Cygnet v1.2

Cygnet is a low-cost embeddable STM32L4+-based microcontroller board designed to accelerate the development and deployment of battery-powered IoT solutions.



As a lower-cost alternative to the Swan, Cygnet still provides an extensive feature set required for edge-based inferencing and remote monitoring applications. Like its more expensive sibling, Cygnet is designed to be the ideal companion to Notecard while offering a more budget-friendly option.

Functional Description

Cygnet is a Feather-compatible STM32-based MCU, and a lower-cost alternative to our popular Swan MCU. Like the Swan, Cygnet is offered in a Feather standard form factor and uses a STM32L4 part while still providing plenty of flash and RAM to run the majority of your Notecard-powered applications.

Features

- Features of the [ST STM32L433CC microcontroller](#)
 - 80MHz Clock speed
 - 256KB Flash, proprietary code readout protection

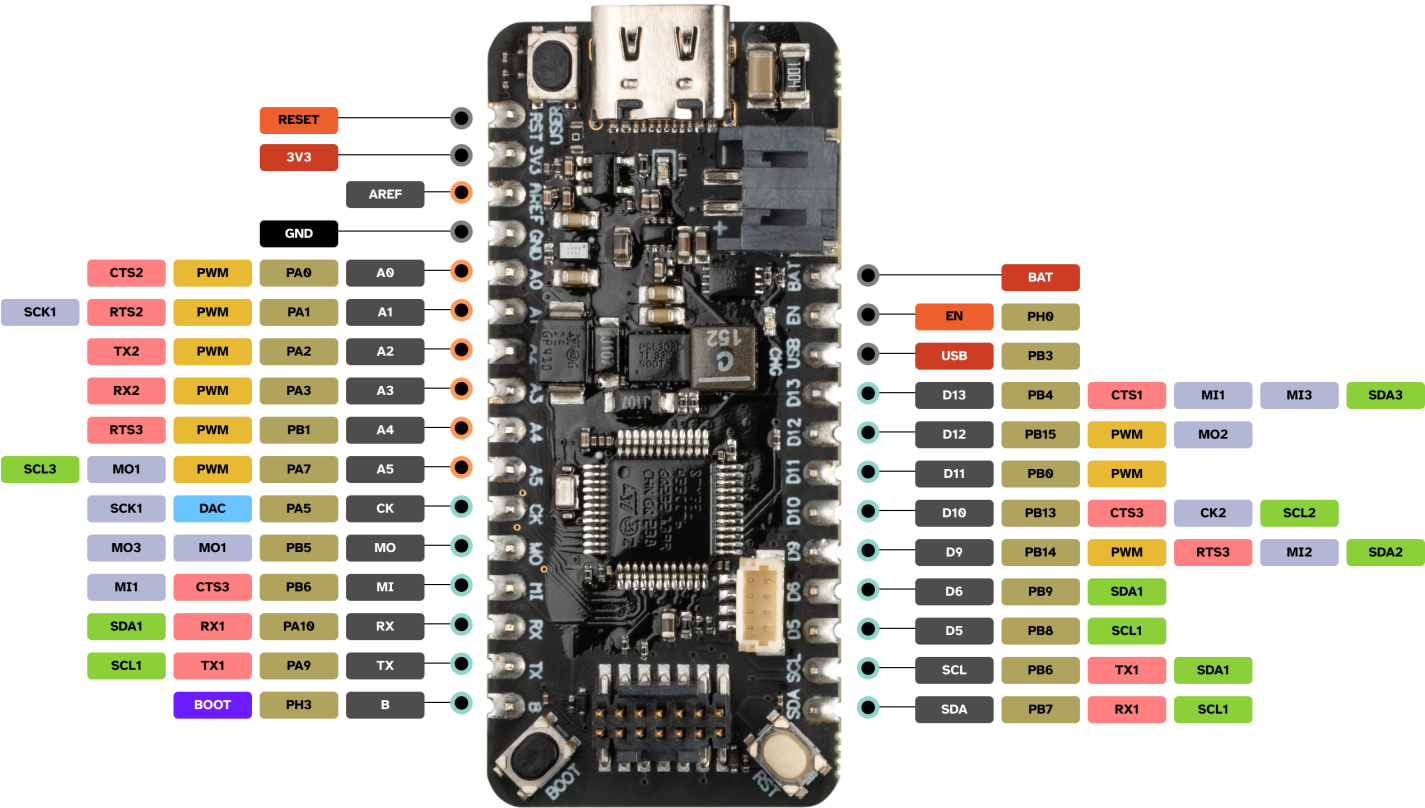
- 64KB of SRAM including 64KB with hardware parity check
- Ultra-low-power with FlexPowerControl
- 11x timers
- 16x communication interfaces
- 14-channel DMA controller
- Rich analog peripherals (independent supply)
- True random number generator
- Compliant with the [Adafruit Feather Specification](#)[🔗]
 - Includes a USB-C port for easy power and serial connectivity
 - Includes a PMIC accessible via a JST PH connector, allowing you to either power the board via a LiPo battery and/or recharge the battery via USB.
- `USER_BTN` programmable button
- `LED_BUILTIN` programmable LED (red)
- JTAG (SWD capable) debug jack
- BOOT and RESET buttons
- Modular design supports Feather pins or an expansion PCB (to break pins out to 0.1" headers for easier wiring and debugging).
- 10k Ω pull-ups on the `SDA` and `SCL` pins
- Qwiic connector
- [Notecard Outboard Firmware Update](#) support

Package Configuration

The Cygnet can be used as a Feather-compatible board with soldered male headers, as a part of the Blues Notecard Feather dev kit.

Feather-compatible Cygnet

Out of the box, the Cygnet is usable as a [Feather-compatible device](#).



Pin Information

The following tables contain pin definition mappings between the Cygnet Feather pins to the STM32L433 core MCU.

Cygnet Feather to STM32 Mapping

Pin #	Pin Name		Pin #	Pin Name
RST	RST#			----
	3V3			----
	AREF			----
	GND			----
PA0	A0			BAT
PA1	A1		PH0	EN
PA2	A2		PB3	USB
PA3	A3		PB4	D13
PB1	A4		PB15	D12
PA7	A5		PB0	D11
PA5	CK		PB13	D10
PB5	MO		PB14	D9
PA6	MI		PB9	D6

Pin #	Pin Name		Pin #	Pin Name
PA10	RX		PB8	D5
PA9	TX		PB6	SCL
PH3	B		PB7	SDA
PC13	USER_BTN		PA8	LED_BUILTIN

Pin Description Table

Pin Name	Pin Description (Primary)	Voltage Tolerance
A0	I/O - GPIO, PWM, ADC	5V
A1	I/O - GPIO, PWM, ADC	5V
A2	I/O - GPIO, PWM, ADC	5V
A3	I/O - GPIO, PWM, ADC	3.6V
A4	I/O - GPIO, PWM, ADC	5V
A5	I/O - GPIO, ADC	5V
D5	I/O - GPIO	5V
D6	I/O - GPIO	5V
D9	I/O - GPIO, PWM	5V
D10	I/O - GPIO, ADC	5V

Pin Name	Pin Description (Primary)	Voltage Tolerance
D11	I/O - GPIO, PWM, ADC	5V
D12	I/O - GPIO, PWM, ADC	5V
D13	I/O - GPIO, ADC	5V
SCL	I ² C - Serial Clock	5V
SDA	I ² C - Serial Data	5V
3V3	Power - Constant 3.3V Supply	-
EN	Power - Chip Enable	5V
GND	Power - Ground	-
RST	Power - Reset	-
BAT	Power - Battery Voltage Supply	-
AREF	Power - Reference Voltage	-
USB	Power - USB Voltage Supply	-
RX	Serial - Receive	5V
TX	Serial - Transmit	5V
B	Boot0 - Boot into Bootloader	5V
MI	SPI - Main In Secondary Out	5V
MO	SPI - Main Out Secondary In	5V

Pin Name	Pin Description (Primary)	Voltage Tolerance
CK	SPI - Serial Clock, DAC	3.6V
ENABLE_3V3	Enable External 3V3 Regulator	-
LED_BUILTIN	Built-in LED	-
USER_BTN	User Button	-

NOTE: All digital I/O pins are interrupt capable.

Specifications

Electrical Characteristics

DC Characteristics

Description	Minimum	Maximum	Unit
VIN Supply Voltage	2.5	5.5	V
VBAT Supply Voltage	2.5	5.5	V
VUSB Supply Voltage	2.5	5.5	V
Supply Current	0.5	2.0	A
3V3 Output @ 5V	1.07	2.09	A

Absolute Maximum Ratings

Description	Minimum	Maximum	Unit
Operating temperature	-40	125	°C

Ordering Information

- Please visit the [Cygnet product page](#) for ordering information.

Design Files

Open source hardware designs for the Cygnet and all Blues hardware are maintained in the [note-hardware](#) [GitHub](#) repository.

Here are the design files available for the Cygnet:

- [Schematic](#) ([.pdf](#)) – the full circuit schematic. Use it to understand how the STM32, power, and I/O headers are wired together when designing a compatible host or debugging a connection.
- [Bill of materials](#) ([.xlsx](#)) – every component with its reference designator and manufacturer part number. Use it to source parts or build your own board.
- [PCB drawing](#) ([.pdf](#)) – a dimensioned drawing of the board layers, drill details, outline, and mounting-hole locations for reference and mechanical fit.
- [Gerber fabrication files](#) ([.zip](#)) – the Gerber and drill set. Send this package to a PCB manufacturer to have bare boards produced.
- [KiCad project \(folder\)](#) [↗](#) – the complete, editable KiCad design (schematic sheets, PCB layout, and libraries). Open it in KiCad to modify the design or generate your own outputs.

Board Errata

- The on-board QWIIC connector should only be used when the `ENABLE_3V3` signal is HIGH and thus powering the 3V3 pin, as it is by default.

Terms and Conditions

Visit [Blues Hardware Terms & Conditions](#)[↗].

Revision History

Author	Date	Summary
Alex R. Bucknall	10 DEC 2024	Document drafted
Brandon Satrom	03 FEB 2025	Added Errata for <code>ENABLE_3V3</code>
Rob Lauer	03 AUG 2026	Added KiCad schematics

Contact Information

For other questions about the Cygnet, visit the [Blues Forum](#).

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