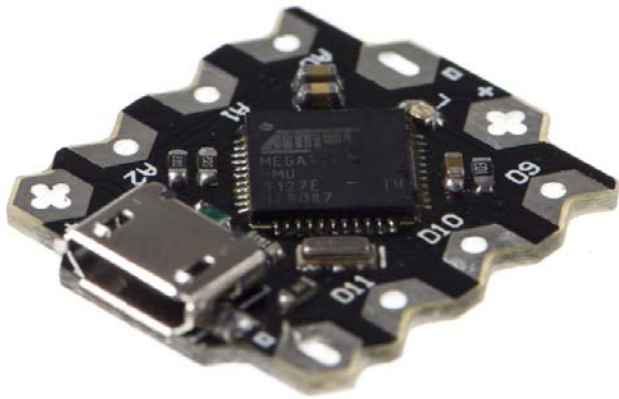




## Beetle SKU:DFR0282

From Robot Wiki



Beetle

### Contents

- [1 Introduction](#)
- [2 Specification](#)
- [3 PinOut](#)
- [4 Tutorial](#)
  - [4.1 Power](#)
  - [4.2 Programming](#)
  - [4.3 Example Code](#)
- [5 Trouble shooting](#)

### Introduction

The “Beetle” is a minimized version of Arduino Leonardo, and has same powerful functionalities as Leonardo. It is ideal for DIY projects, wearable projects and etc. Its key features are :

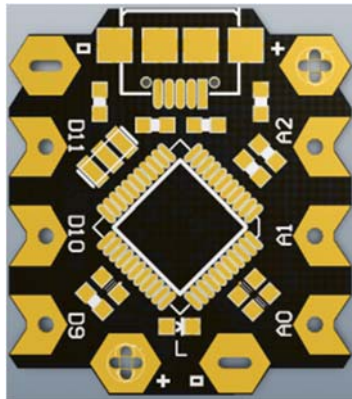
- 20mm X 22mm compact size
- Direct downloading and testing via Micro USB
- V-shaped large-size gold-plated IO ports make it convenient for the user to twist wires upon, and can also be directly sewn on clothes with conductive thread.
- Two honeycomb shape gold-plated power interface
- Magic light blue soft BLINK indicator

Beetle is fully compatible with Arduino, please select “Arduino Leonardo” when using.

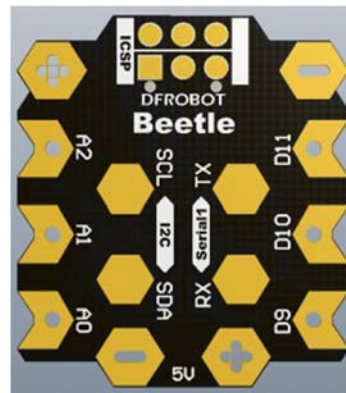
## Specification

- Microcontroller: ATmega32u4
- Clock Speed: 16 MHz
- Operating Voltage: 5V DC
- Digital I/O Pins: 10
- PWM Channels: 4
- Analog Input Channels: 5
- UART: 1
- I2C: 1
- |Micro USB: 1
- Power interfaces: 2
- Flash Memory: 32 KB of which 4KB used by bootloader
- SRAM: 2.5 KB
- EEPROM: 1 KB
- Physical Dimension: 20mm\*22mm\*3.8mm

## PinOut



Beetle front look



Beetle back look

- IO Port Mapping in correspondence with Arduino Port:

Silkscreen	Digital Pin	PWM Channel	Analog Channel	UART	I2C
RX	0			Serial1	
TX	1				
SDA	2				SDA
SCL	3	3			SCL
9	9	9	A9		
10	10	10	A10		
11	11	11			
A0	A0		A0		
A1	A1		A1		
A2	A2		A2		

- Power interface description:

Silkscreen	Description
+	VCC
-	GND

## Tutorial

### Power

Power supply via micro USB or power interface.

## Programming

Beetle is fully compatible with Arduino Leonardo, see link for more details in connection : <http://arduino.cc/en/Guide/Windows#toc4>, the only difference is to select "Arduino Leonardo " ("tools > board > Arduino Leonardo" in Arduino IDE) .

## Example Code

All codes for Arduino Leonardo can apply to Beetle.

### Note:

#This product uses DC power supply with a working voltage of 5V. 6V will damage the product by overvoltage. This product works reliably between

4.5V-5V; it may work under 3V-4.5V, but the reliability is not guaranteed.

#For large load applications (such as motor control), you need to connect the loaded VCC and GND directly with power supply, and parallel with

capacitor over 10uF, in order to prevent restart or malfunction caused by large load transient.

#In Arduino environment, Beetle has the same features as Leonardo with multiple serial ports, Serial used for USB virtual port; Serial1

used for RX/TX port.

## Trouble shooting

Sometimes Leonardo Uart port will be locked by the sketch. It will lost its COM Port in Device Manager. There is a method to wake it up.

Step1 : There are 6 dots on the back of the module. This is ICSP interface. Please plug beetle to your usb cable. And watch your device manager. Using a cable to touch Pin 5 and Pin 6, then Beetle will reset. and Device manager should appear a COM port named "Arduino Leonardo bootloader (COM x)". After a few seconds, it will disappear. If you see this information you could go Step 2.

Step2: Open your arduino IDE, and open any sketch like "Blink", select the board to "Leonardo". There is no COM port now. Just click "Upload". After IDE has completed verifying, touch the Pin 5 and Pin 6 immediately. You need try several times, because the correct time is not easy to be caught.

Use has been normal, after loading a new program, the computer can not find the virtual serial Beetle?

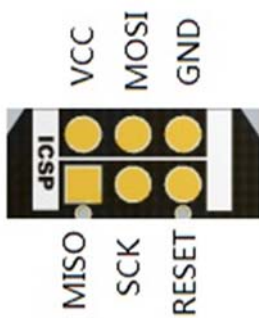
After eliminating the cable connection problems, then this question is that the new program is loaded affect the USB communication.

Beetle / Leonardo USB is implemented by the appropriate software (Arduino IDE implemented), it and the user program are on the ATMEGA32U4,

If the user program affects the USB-related operations will lead to see the USB virtual serial port. At this time we need to reload the

available user program (such as blink). If the Beetle / Leonardo has lost contact with computer, it can't automatically reset, it needs

to be loaded manually reset mode, Beetle resets through a short jumper RESET and GND of ICSP interface to achieve.



Beetle-ICSP interface

More question and cool idea, [visit DFRobot Forum](#)