Wio Terminal: ATSAMD51 Core with Realtek RTL8720DN BLE 5.0 & Wi-Fi 2.4G/5G Dev Board

SKU 102991299

Compatible with Arduino and MicroPython, Wio Terminal is an ATSAMD51-based microcontroller with wireless connectivity supported by Realtek RTL8720DN. Its CPU speed runs at 120MHz (Boost up to 200MHz). Realtek RTL8720DN chip supports both Bluetooth and Wi-Fi providing the backbone for IoT projects. The Wio Terminal itself is equipped with a 2.4" LCD Screen, onboard IMU(LIS3DHTR), Microphone, Buzzer, microSD card slot, Light sensor, and Infrared Emitter(IR 940nm).

> Note
>
> The Wio Terminal Battery Chassis with a builtin 650mAH Lithium battery and 6 Grove Interfaces is already launched, check it out!

We are planning to develop more extension boards for Wio Terminal in the future and we are open to all suggestions from the community! Join the disccusion at Forum and tell us your thoughts!

Wio Terminal

(i) seeed studio

- 🔲 Microchip ATSAMD51P19 Cortex-M4F
- 🔲 Raspberry Pi 40-pin compatible
- 📶 Dual Band 2.4Ghz / 5Ghz Wi-Fi, BLE / BLE 5.0.
- 🔲 Support Arduino, MicroPython, ArduPy, VS Code

Description

The Wio (Wireless Input and Output) platform (Wio Link, Wio Nodes,etc.) was first introduced to the world at the end of 2015 by Seeed.

Today a new Wio member is joining the family - Wio Terminal. Instead of being a single embedded functional module, Wio Terminal is more of a complete system, equipping with Screen + Development Board + Input/Output Interface + Enclosure. Make it an efficient and Product-Ready Product.
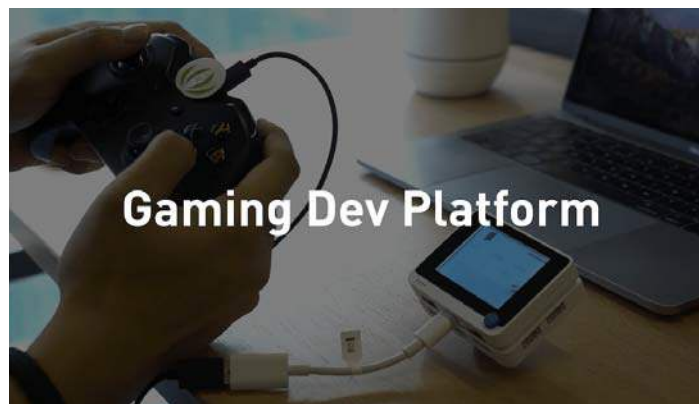
Sensing and tagging the Real-World data with over 300 Groves created by Seeed

A pythonic way to use a 100% open-source Hardware.

Build your program interpreter starting from 90% with LCD screen and compact enclourse

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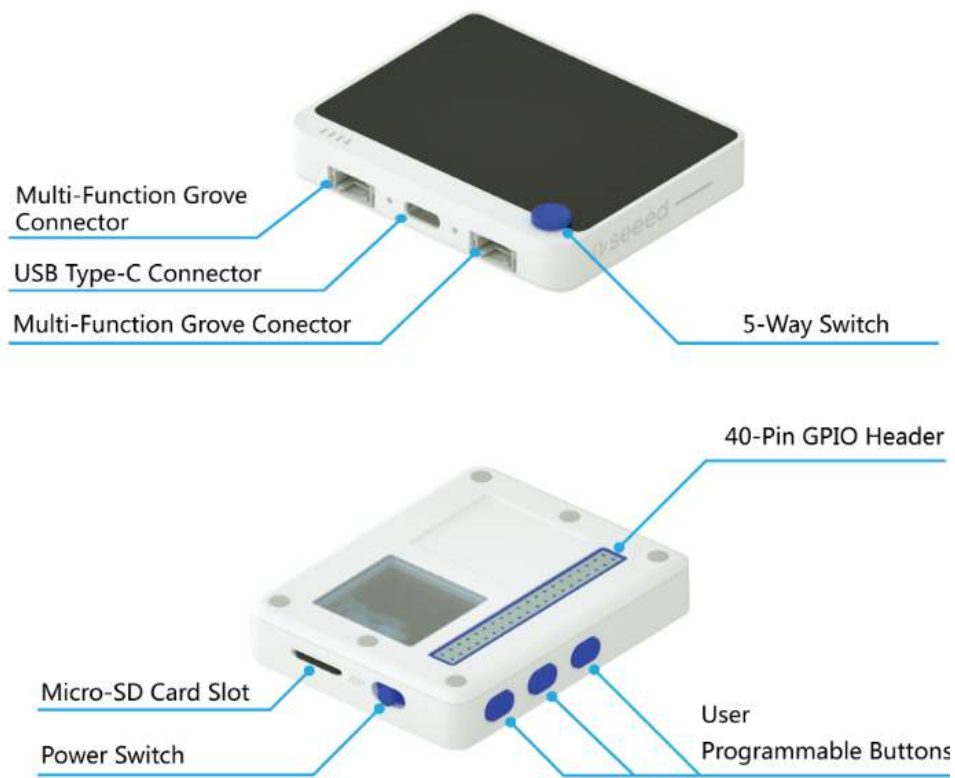
With Wio Terminal:

Wio Terminal + Grove = IoT System

Wio Terminal + Raspberry Pi = Edge Computing System

Wio Terminal + Customized add-ons = Handheld devices or endless possibilities!

Key Features

- Multi-Function Grove Connector
- USB Type-C Connector
- Multi-Function Grove Conector
- 5-Way Switch

- 40-Pin GPIO Header
- Micro-SD Card Slot
- Power Switch
- User Programmable Buttons

Highly Integrated Design

MCU, LCD, WIFI, BT, IMU, Microphone, Buzzer, microSD Card, Configurable Buttons, Light Sensor, 5-Way Switch, Infrared Emitter (IR 940nm), Crypto-authentication Ready

Powered by Microchip ATSAMD51P19

ARM Cortex-M4F core running at 120MHz (Boost up to 200MHz)

4 MB External Flash, 192 KB RAM

Comprehensive Protocol Support

SPI, I2C, I2S, ADC, DAC, PWM, UART(Serial)

Powerful Wireless Connectivity

Powered by Realtek RTL8720DN

Dual Band 2.4Ghz / 5Ghz Wi-Fi (802.11 a/b/g/n)

BLE / BLE 5.0

USB OTG Support

USB-Host

Accessible Devices: Mouse, Keyboard, MIDI Devices, Xbox/PS Gaming Controllers, 3D Printers

USB-Client

Simulated Devices: Mouse, Keyboard, MIDI Devices

Grove Ecosystem

300+ Grove modules to explore with IoT

Two onboard multi-functional Grove ports can be used for Digital, Analog, I2C, and PWM

Raspberry Pi 40-pin Compatible

Can be mounted to a Raspberry Pi as a slave device

Raspberry Pi's HAT can be used with an adapter cable

Software Support

Arduino

MicroPython

ArduPy

AT Firmware

Demo

Note

If you are interested in our demos, detailed tutorials and Arduino libraries can be found in our wiki.

Wio Terminal Displaying onboard IMU data in realtime

Wio Terminal Displaying and Storing Light Sensor Data

Applications

Python Terminal Device

Data Collection Device for Machine Learning
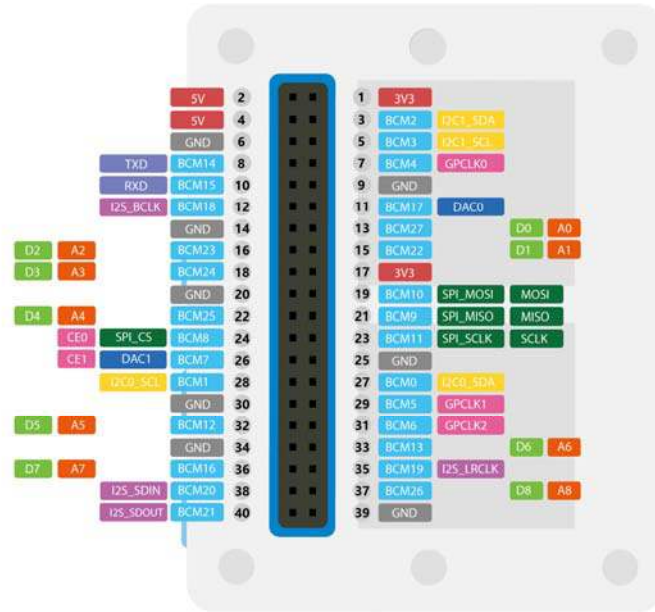
Hand-held Device
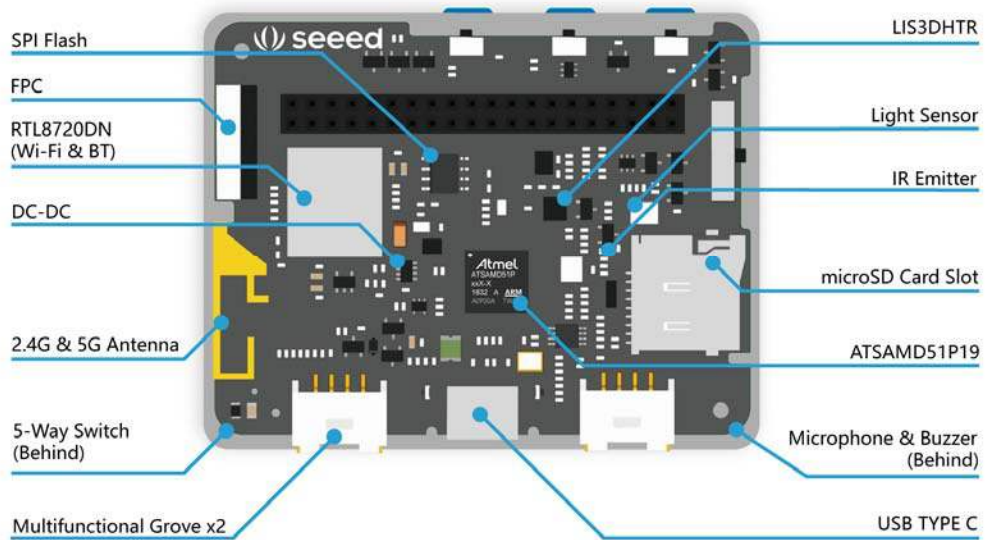
Retro Gaming Device

IoT Controller

Education

Prototyping

Slave device / Accessories for Raspberry Pi

Pinout Diagram

Hardware Overview

Setup, Documentation, and Support

Please visit our wiki for more information about Wio Terminal.

Technical Specification

Main Chip	Manufacturer Part Number	ATSAMD51P19
	Core Processor	ARM® Cortex®-M4F
	Maximum Speed	200MHz
	External Flash	4M
	Operating Temperature	-40°C ~ 85°C (TA)
LCD Screen	Resolution	320x240
	Display Size	2.4inch
	Drive IC	ILI9341
Wireless Connectivity	Manufacturer Part Number	RTL8720DN
	KM4 CPU	ARM® Cortex®-M4F @ 200MHz
	KM0 CPU	ARM® Cortex®-M0
	Wi-Fi	802.11 a/b/g/n 1x1, 2.4GHz & 5GHz
	Bluetooth	Support BLE / BLE5.0
Built-in Modules	Accelerometer	LIS3DHTR
	Microphone	1.0V-10V -42dB
	Speaker	≥78dB @10cm 4000Hz

	Light Sensor	400-1050nm
	Infrared Emitter	940nm
Interface	MicroSD Card Slot	Maximum 16GB
	GPIO	40-PIN (Raspberry Pi Compatible)
	Grove	2 (Multifunction)
	FPC	20-Pins
	USB Type-C	Power & USB-OTG
Operation Interface	5-Way Switch	
	Power/Reset Switch	
	User-defined button *3	
Enclosure	Dimension	72mm*57mm*12mm
	Materials	ABS+PC

Part List

- Wio Terminal
- USB Type-C Short Cable
- User Manual

ECCN/HTS

HSCODE	8543709990
UPC	

FCC	1
CE	1