JavaScript seems to be disabled in your browser. For the best experience on our site, be sure to turn on Javascript in your browser.



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

SKU 102991299

2 Reviews

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).

- 1 +
CN Warehouse

Pre Order

- [ ] Wio Link
- [ ] Wio Terminal Battery Chassis - Built-in 650mAH Lithium Battery w/ 6 Grove Interfaces

Tags: Development board | ATSAMD51 | RTL8720DN | Wi-Fi | Bluetooth | IoT

Product Details
Learn and Documents
Reviews
FAQ

PRODUCT DETAILS

An error occurred.

Try watching this video on www.youtube.com, or enable JavaScript if it is disabled in your browser.

Key Features

- Powerful MCU: Microchip ATSAMD51P19 with ARM Cortex-M4F core running at 120MHz
- Reliable Wireless Connectivity: Equipped with Realtek RTL8720DN, dual-band 2.4Ghz / 5Ghz Wi-Fi
- Highly Integrated Design: 2.4" LCD Screen, IMU and more practical add-ons housed in a compact enclosure with built-in magnets & mounting holes
- Raspberry Pi 40-pin Compatible GPIO
- Compatible with over 300 plug&play Grove modules to explore with IoT
- USB OTG Support
- Support Arduino, Micropython, ArduPy(What is ArduPy?), AT Firmware, Visual Studio Code
- TELEC certificated

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 equipped with Screen + Development Board + Input/Output Interface + Enclosure, making it an efficient and Product-Ready Product.
With Wio Terminal, you can:

- Sense and tag the Real-World data with over 300 Groves created by Seeed
- Use a 100% open-source Hardware in a pythonic way
- Build your program interpreter starting from 90% with LCD screen and compact enclosure

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)**. On top of that, it also has two multifunctional Grove ports for Grove Ecosystem and Raspberry pi 40-pin compatible GPIO for more add-ons.

- Wio Terminal + Grove = IoT System
- Wio Terminal + Raspberry Pi = Edge Computing System
- Wio Terminal + Customized add-ons = Handheld devices or endless possibilities!

> **What is Grove?**
> No jumpers or soldering required, Grove makes it easier to connect, experiment, and simplify the prototyping process significantly. We have developed more than 300 Grove modules, covering a wide range of applications that can fulfill a variety of needs. Each one comes with clear documentation and demo code to help you get started quickly. Not only are these open hardware, but we also have open-source software.

Highlight Features

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
- Well-designed enclosure with built-in magnets and two mounting holes, allowing you to set up your IoT project without hassle

Powerful MCU - 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)

Reliable 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

- Accessible Devices(as USB-Host): read data or signals from a mouse, keyboard, MIDI devices, Xbox/PS gaming controllers, 3D printers
- Simulated Devices(as USB-Client): emulate a mouse, keyboard or MIDI devices to Host PC

- When using USB Host/Client function, you can use the 40-pin on the back of Wio Terminal for power supply. Check here for detailed instructions.

Grove Ecosystem

- 300+ Grove modules to explore with IoT
- Two onboard multi-functional Grove ports can be used for Digital, Analog, I2C, and PWM
- Note: To connect Grove with Wio Terminal, please use unbuckled grove cable.

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
- Visual Studio Code
- CircuitPython (coming soon)

> **What is ArduPy?**
> ArduPy is a combination of Arduino and MicroPython developed by Seeed. Check our Wiki and Github for more technical details
> We wish to develop the ArduPy into a community-driven software and look forward to your participation. Join the discussion at our Forum!

Demos

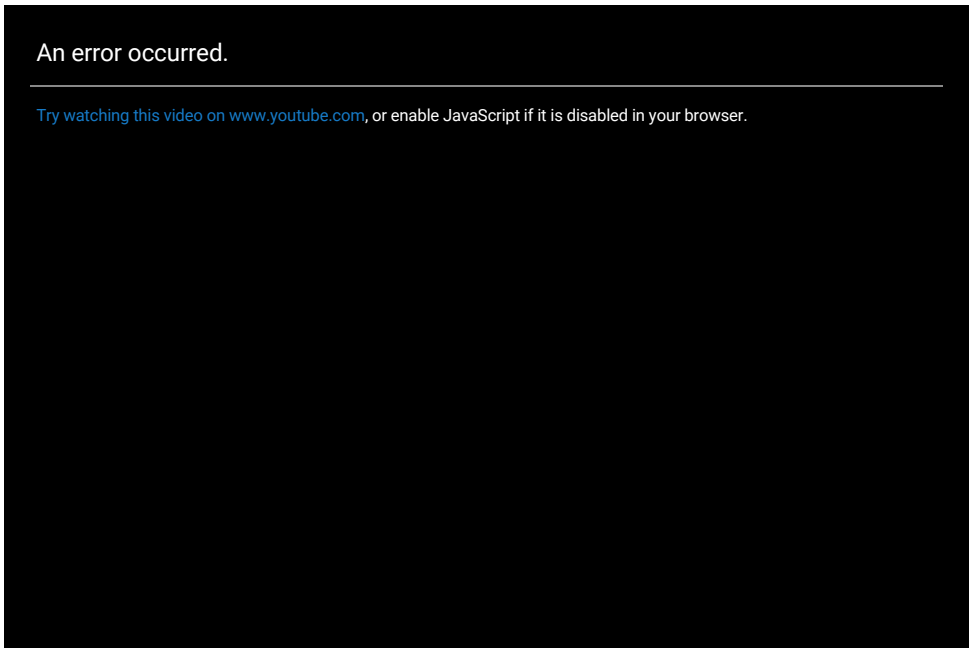
Build An Affordable IR Thermal Imaging Camera using Wio Terminal and Grove – Infrared Temperature Sensor Array (AMG8833)

Play retro game on Wio Terminal

For more demos and detailed instructions, please check our wiki.

Fully Open-source Manufacturing Process

As a fully open-source device, Wio Terminal development will continue to optimize its performance and every update will be publicized on our blog. We are also making a series of Vlog about the fully open-source manufacturing process of Seeed product. From hardware and software development, to each step of manufacture and testing, you can find all you want to know about Wio Terminal, check now!



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

Wio Terminal Pin Out Overview by Seeed

Wio Terminal Pin Out Overview by @matsujirushi12

Hardware Overview

Setup, Documentation, and Support

Please visit our wiki for more information about Wio Terminal. If you have any questions, feel free to ask us at our Forum.

Technical Specifications

Main Chip	Manufacturer Part Number	ATSAMD51P19
	Core Processor	ARM® Cortex®-M4F
	Maximum Speed	200MHz
	External Flash	4MBytes
	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 BLE5.0

	Accelerometer	LIS3DHTR
Built-in Modules	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

LEARN AND DOCUMENTS

Documentations

[Attatchment] ATSAMD51N19A Datasheet
[Attatchment] Wio Terminal Schematics
[Attatchment] Wio Terminal Schematics v1.1
[Attatchment] Wio Terminal Schematics v1.2
[Attatchment] Wio Terminal Enclosure Dimensions - Front
[Attatchment] Wio Terminal Enclosure Dimensions - Back
[Attatchment] Wio-Terminal-Screen-Sticker-Design-File(Wio-Terminal-ちゃん)
[Attatchment] Wio-Terminal-chan-Desgin-File-blue&white
[Attatchment] Wio Terminal Enclosure Dimensions - Front (DXF)
[Attatchment] Wio Terminal Enclosure Dimensions - Back (DXF)
[Attatchment] Wio Terminal Battery Chassis Dimensions (DXF)
[Attatchment] Wio Terminal PCB Dimensions (DXF)

[Attatchment] **Wio Terminal User Manual**

Learn

[Wiki] Wio Terminal Getting Started

This is the wiki page for this product, which will show you how to use the product, as well as details about the software and hardware.

[Wiki] Wio Terminal running USB-Host

Wio Terminal can run as USB-Host and use USB devices

[Wiki] How to Use PlatformIO IDE For Arduino Programming

Using PlatformIO to develop Wio Terminal

[Project] The Game of "Statue" - Wio Terminal and Grove - Mini Lidar Challenge

Let's see who could be the "Statue" in front of Wio Terminal and Grove - Mini Lidar Challenge of highi degree of accuracy and precision.

[Project] Play Grove - Analog Microphone with Wio Terminal

This project is going to introduce how this Grove-Analog Microphone works via Serial Port and Wio Terminal!

[Project] Community Project Collection

Since the release of Wio Terminal, we have seen many creative projects from the community. We collected various projects in this post and hope some of them will inspire you!

[Project] Grove - Thermal Imaging Camera IR Array (MLX90641) with Wio Terminal Video

Grove - Thermal Imaging Camera IR Array (MLX90641) with Wio Terminal

[Blog] Resource Roundup: Tutorials, Reviews, and Projects

we have gathered all helpful resources for Wio Terminal together in this blog, covering various tutorials, software/hardware updates, reviews, and projects, and will keep updating weekly.

REVIEWS

Only registered users can write reviews. Please Sign in or create an account

★★★★★
Awesome

I kind this little cutie. perfect arduino...

By Alisa
5/28/20

★★★★★
Awesome

I kind this little cutie. perfect arduino...

By Alisa
5/28/20

FAQ

Please enable JavaScript to view the comments powered by Disqus.

© 2008-2020 Seeed Technology Co.,Ltd. All rights reserved.

CONTACT SUPPORT

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

Seeed Studio:

104020208 101020603 101020003 114110207 101020232 102991714 316030174 321080111 101020008
101020033 102010168 110061284 111020002 101110061 103020027 SEEED-114992565 114992266
321010008 101020011 101020616 109020021 110061401 110070020 113990975 104030007 110070024
110070048 111020043 114990811 114991726