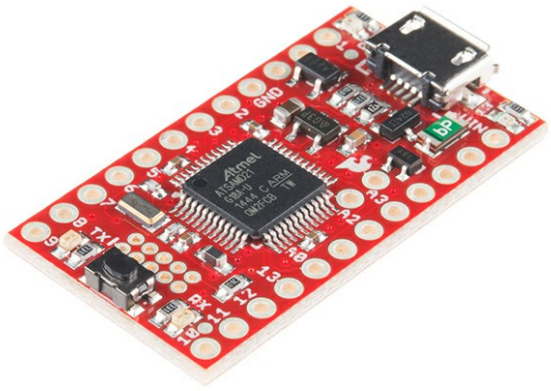






3D Download: Sketchup, STL, Blender

SparkFun SAMD21 Mini Breakout

DEV-13664 ROHS ✔

12

DESCRIPTION FEATURES DOCUMENTS

If you're ready to step your Arduino game up from older 8-bit/16MHz microcontrollers, the SparkFun SAMD21 Mini Breakout is a great landing spot. The SAMD21 Mini Breakout is a Pro Mini-sized breakout for the Atmel ATSAMD21G18, a 32-bit ARM Cortex-M0+ processor with 256KB flash, 32KB SRAM, and an operating speed of up to 48MHz. This mini breakout provides you with an Arduino hardware option that solves the problems of low storage limits and dynamic memory stack overflows that have plagued the previous iterations of the Arduino family. Yes, the SparkFun SAMD21 Mini Breakout is even fully supported in the Arduino IDE and libraries for the Arduino Zero!

The SparkFun SAMD21 Mini Breakout has been equipped with a USB interface for programming and power, surrounded with an RTC crystal, and a 600mA 3.3V regulator. By utilizing the Pro R3's extra PCB real-estate we've been able to leave room for a few extra GPIO pins. We've pinned the Mini Breakout to match – as much as possible – our faithful Pro Mini and Pro Micro. The I/O and voltage rails are all broken out to a pair of breadboard-compatible headers. Power can be supplied, and the board can be programmed, through the micro-B USB connector.

One of the most unique features of the SAMD21 is SERCOM – a set of six configurable serial interfaces that can be turned into either a UART, I^2C master, I^2C slave, SPI master, or SPI slave. Each SERCOM provides for a lot of flexibility: the ports can be multiplexed, giving you a choice of which task each pin is assigned.

The on-line SAMD21 Mini/Dev Breakout Hookup Guide (in the *Documents* section below) contains step by step instructions of how to connect your SparkFun SAMD21 Mini Breakout as well as a few circuit examples to test out. Full example code is provided and explained and even includes troubleshooting tips to make make you have zero problems.

Note: The breakout does NOT have headers installed and will need to purchased and soldered on yourself. Check the *Recommended Products* section below for the type of headers we use in the Hookup Guide!

Tags

ARDUINO ARM BREAKOUT DEVELOPMENT SAMD21

SparkFun SAMD21 Mini Breakout Product Help and Resources

TUTORIALS VIDEOS SUPPORT TIPS SKILLS NEEDED

SAMD21 Mini/Dev Breakout Hookup Guide

NOVEMBER 12, 2015

An introduction to the Atmel

ATSAMD21G18 microprocessor and our Mini and Pro R3 breakout boards. Level up your Arduino-skills with the powerful ARM Cortex M0+ processor.

COMMENTS 66 REVIEWS ★★★★☆ 12

Customer Reviews

★★★★☆ 4.8 out of 5

Based on 12 ratings:

5 star	9
4 star	3
3 star	0
2 star	0
1 star	0

Currently viewing all customer reviews.

1 of **1** found this helpful:

★★★★★ **Excellent**

about 2 years ago by Member #484369 ✔ verified purchaser

Works great and a nice step up from the Uno

4 of **4** found this helpful:

★★★★☆ **Excellent size**

about 2 years ago by KimLorentz ✔ verified purchaser

This mini breakout board is small and powerfull. Love using it.

As a note I edit the variant files on the sparkfun board to give me Serial 2 and Serial 3. Dont need them right now but good to have. I have tested these Serials and thay are working.

All info can be found on Sparkfun Forum. Link: https://forum.sparkfun.com/viewtopic.php?f=32&t=42698&p=186984&hilit=SAMD21+Serial2#p186984

1 of **1** found this helpful:

★★★★☆ **Powerful, Flexible, but is it complex**

about 2 years ago by Member #585377 ✔ verified purchaser

What I really like is: - with the Atmel ICE you have ability to see all the registers, variables, and set breakpoints - CPU clock, RAM, Flash, and data paths are much larger than the 8bit Mini breakout - USB included

But all the flexibility comes with complexity and frustration. Reading the datasheet is like reading a foreign language. You have a vague idea what is being described, but not enough to get you where you want to be.

I use the Atmel studio and there are major tools provided: ASF and Atmel Start. I have used both and finally settled on ASF, but it still takes a lot of experimentation to get the chip setup. Getting the clocks setup for PWM measurement and transmission was a trial.

You can find lots of example code, but there are lots of SAM flavors, and the closest example is usually for a flavor different than the SAMD21G18.

I still plan to use it as my baseline CPU board, because the power and debugging capabilities out weigh the complexity fog.

Be prepared to make a major investment in time to get to the point where you understand how to make this guy sing. Once you get past pin assignments, IO setup, and interrupt mapping, then you have all the debugging tools you expect in today's high level language development environment, and CPU resources large enough you do not ponder whether adding another variable or hunk of code is going to crash the program.

★★★★★ Is nice, yes

about 2 years ago by Member #753764 ✔ verified purchaser

Nice product for a good price

★★★★★ Love this little sucker

about 2 years ago by Member #753120 ✔ verified purchaser

I have both this and an Adafruit SAMD Feather. Both are great parts in different ways

I find myself prototyping with this one more because it's smaller and has the standard cortex debug port.

The near-drop-in-replacement for the ubiquitous atmega32u4 pro micro form factor has helped me as well.

Last but not least the quality of this (and other Sparkfun gear) is definitely higher than the junk I get off eBay. Big ups, thank you guys and girls!

★★★★★ Great product for my projects

about a year ago by Member #864156 ✔ verified purchaser

Started out my projects using the Arduino AVR 328, but kept running out of memory. This is a great way to have access to Arduino environment and not worry about memory. I spent way too much time in the 80's dealing with memory, why do it now no 30+ years later.

★★★★★ Small & Powerfull

about a year ago by Member #812913 ✔ verified purchaser

Very small, extremely powerful with a lot of memory. I've used this as the core component in many prototypes, it's my goto core module, it meets nearly all my needs and allows me to easily load custom HID profiles. I would love to see another variant of this, with an integrated BLE module + Li Battery charging.

★★★★★ An amazingly fast and powerful board.

about a year ago by Member #477010 ✔ verified purchaser

Incredibly fast board at 48MHz. Tons of memory for big programs. Works great with Arduino IDE, simple to load drivers.

★★★★★ great help for prototyping

about a year ago by Rock Wood ✔ verified purchaser

I bought one and found it so practical the I bought 5 more. I am using it during the design phase of a complex project that supports multiple sensors. Different versions use sensors from different manufacturers. This allows me to choose the best solutions before committing the pcb. The small form factor is by far more convenient than the Atmel board.

★★★★☆ one of the best SAMD21 boards out there!

about 8 months ago by Member #570532 ✔ verified purchaser

the 4 layer PCB construction makes this board extra tiny! its the perfect balance of exposed pins and additional components.

I also like the adafruit feather M0, but it has a bunch of extra space for prototyping, and a battery charger circuit. depending on the application sometimes you dont need all the extra parts.

SUBSCRIBE TO NEWSLETTER

In 2003, CU student Nate Seidle blew a power supply in his dorm room and, in lieu of a way to order easy replacements, decided to start his own company. Since then, SparkFun has been committed to sustainably helping our world achieve electronics literacy from our headquarters in Boulder, Colorado.

No matter your vision, SparkFun's products and resources are designed to make the world of electronics more accessible. In addition to over 2,000 open source components and widgets, SparkFun offers curriculum, training and online tutorials designed to help demystify the wonderful world of embedded electronics. We're here to help you start something.

About Us
About SparkFun
SparkFun Education
Feeds
Jobs
Contact

Help
Customer Service
Shipping
Return Policy
FAQ
Chat With Us

Programs
Become a Community Partner
- Community Stories

Custom Kit Requests
Tell Us About Your Project
Sell Your Widget on SparkFun
Become a SparkFun Distributor
Large Volume Sales

Community
Forum
SparkFun IRC Channel
Take the SparkFun Quiz
SparkFun Kickstarter Projects
Distributors

What's on your mind?

For which department?

General

Please include your email address if you'd like us to respond to a specific question.

email address

SUBMIT