# Adafruit PyGamer

https://www.adafruit.com/product/4242

The Microchip (nee Atmel) SAMD51 is an ARM Cortex-M4F running at 120 MHz with 192 or 256kB on-chip SRAM, up to 1MB Flash memory and built in USB. All GPIO is 3.3V in/out max unless otherwise stated. SERCOMs can be used as UART (TX on SERCOM pad 0, RX on any pad), I2C (SDA on pad 0, SCL on pad 1), or SPI (SCK on pad 1, MOSI on pad 0 or 3, MISO on any pad remaining)

## Legend

- Power
- GND
- Control
- CircuitPython Name
- Arduino Name
- GPIO
- INT
- DAC/AREF
- ADC
- SERCOM
- SERCOM Alt
- Timer
- Timer Alt
- Timer Alt2
- Special
- I2S
- PCC

## Top board pinout

RESET
RESET
3.3V
AREF
GND

| CircuitPython | Pin | Arduino | |
|---|---|---|---|
| VOUT0 | 2 | PA02 | 14/A0 | A0 |
| VOUT1 | 5 | PA05 | 15/A1 | A1 |
| | 8 | PB08 | 16/A2 | A2 |
| | 9 | PB09 | 17/A3 | A3 |
| VREFB | 4 | PA04 | 18/A4 | A4 |
| VREFC | 6 | PA06 | 19/A5 | A5 |
| | 1 | PA17 | 30 | SCK |
| | 7 | PB23 | 29 | MOSI |
| | 6 | PB22 | 28 | MISO |
| | 1 | PB17 | 1 | D0 |
| | 0 | PB16 | 1 | D1 |
| | 14 | PA14 | 4 | D4 |

A0[0] — TC0[1] S0.1
A0[5] — TC4[0] S4.0
A0[2]/A1[0] — TC4[1] S4.1
A0[3]/A1[1] — TC0[0] S0.0
A0[4] — TC1[0] S0.2
A0[6] —

TCC0[5] TCC1[1] — DATA1
SDCD

TC2[1] TCC1[1] S1.1
TC7[1] S5.3 S1.2
TC7[0] S5.2 S1.2
TCC0[5] TCC3[1] — SOF 1KHZ / SDWP / MCK0
TCC0[4] TCC3[0] — SCK0 / SDCD
TCC1[2] TCC2[0] TC3[0] S4.2 S2.2 — CLK

LED 13 PA23 — S3.1 S5.0 TC4[1] TCC1[7] TCC0[3] SOF 1KHZ FS1 DATA7
D12 12 PA22 5 S3.0 S5.1 TC4[0] TCC1[6] TCC0[2] SDI DATA6
D11 11 PA21 5 S5.3 S3.3 TC7[1] TCC1[5] TCC0[1] SDCK SDO DATA5
D10 10 PA20 4 S5.2 S3.2 TC7[0] TCC1[4] TCC0[0] SDCMD FS0 DATA4
D9 9 PA19 3 S1.3 S3.3 TC3[1] TCC1[3] DATA3
D6 6 PA18 2 S1.2 S3.2 TC3[0] TCC1[2] TCC0[6] DATA2
D5 5 PA16 0 S3.1 S1.0 TCC1[1] TCC0[5] DATA0
SCL 27 PA13 13 S2.1 S4.0 TC2[1] TCC0[7] TCC1[3] SDWP DEN2
SDA 26 PA12 12 S2.0 S4.1 TC2[0] TCC0[6] TCC1[2] SDCD DEN1

VBAT
EN
VBUS

AREF
GND
A0 ~
A1 ~
A2 ~

5V Vcc 3.3V

## Bottom board

A7 21/A7 PB04 4 A1[6]

RESET
ON OFF

AREF
GND
A0 ~
A1 ~
A2 ~
A3
A4
A5

VBAT
En
USB
13
12
11
10
9
6
5
SCL
SDA

5V Vcc 3.3V

SPEAKER
LIPOLY BATTERY

### JOYSTICK
A1[9] 7 PB07 25/A11 JOYSTICK_X
A1[8] 6 PB06 24/A10 JOYSTICK_Y

### SPEAKER
SPEAKER_ENABLE 51 PA27 11

### SD CARD
SOF 1KHZ — TC7[0] S5.2 S1.2 6 PB22 28 MISO
DATA1 — TCC0[5] TCC1[1] TC2[1] S3.0 S1.1 1 PA17 30 SCK
TC7[1] S5.3 S1.2 7 PB23 29 MOSI
CLK — TCC1[2] TCC2[0] TC3[0] S4.2 S2.2 14 PA14 4 D4

### DISPLAY
TFT_LITE 47 PA01 1 S1.1 TC2[1]
TFT_MOSI 41 PB15 15 S4.3 TC5[1] TCC4[1] TCC0[3] DATA9
TFT_SCK 42 PB13 13 S4.1 TC4[1] TCC3[1] TCC0[1] SDWP MCK1
TFT_RST 46 PA00 0 S1.0 TC2[0]
TFT_CS 44 PB12 12 S4.0 TC4[0] TCC3[0] TCC0[0] SDCD SCK1
TFT_DC 45 PB05 5 A1[7] TC0[0] TCC3[0] TCC0[0]

### BUTTONS
A0[12] 0 PB00 50 BUTTON_LATCH
TC7[0] S5.2 14 PB30 49 BUTTON_OUT
SWDO — TCC0[6] TCC4[0] TC0[0] S5.1 S7.0
TCC0[7] TCC4[1] TC0[1] S5.0 S7.1 15 PB31 48 BUTTON_CLOCK

### Voltage Divider
A6 20/A6 PB01 1 A0[13] S5.3 TC7[1]
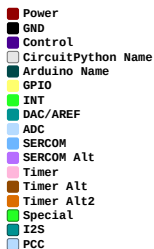
### Accelerometer Interrupt
D7 7 PB14 14 S4.2 TC5[0] TCC4[0] TCC0[2] DATA8

### NEOPIXEL
8 PA15 15 S2.3 S4.3 TC3[1] TCC2[1] TCC1[3]

D2/A8 2/A8 PB03 3 A0[15] S5.1 TC6[1]
SDA 26 PA12 12 S2.0 S4.1 TCC0[6]
SCL 27 PA13 13 S2.1 S4.0 TCC0[7]
TCC1[2] TCC1[3]
D3/A9 3/A9 PB02 2 A0[14] S5.0 TC6[0] TCC2[2]
DEN1 DEN2
SDCD SDWP