LamaPLC: Arduino MKR Family

The Arduino MKR family was created for makers and engineers to quickly prototype IoT projects. What sets the MKR boards apart from other Arduino boards is the 67.64mm * 25mm MKR family form factor, the integrated connectivity in most of them, and the potential for projects of variing levels.

Arduino MKR Boards

Board	Characteristic	Arduino link
MKR ZERO	with SD connector, specially for sound files	link
Arduino MKR FOX 1200	Sigfox connectivity board	link
MKR 1000 WiFi	on-board WiFi	link
MKR WiFi 1010	on-board WiFi and bluetooth for IoT	link
MKR WAN 1300 **MKR WAN 1310**	on-board LoRa network and connection to Arduino LoRa PRO Gateway	link link
MKR GSM 1400	GSM board, end of life	link
MKR NB 1500	Narrowband communication on-board, it can communicate over NB-IoT and LTE-M networks	link
MKR Vidor 4000	camera & HDMI connector, Wi-Fi / Bluetooth® module and up to 25 configurable pins	link

Arduino MKR Shields

Shield	Characteristic	Arduino link
MKR 485 Shield	RS-485 protocol shield	link
MKR CAN Shield	CAN bus shield	link
MKR ENV Shield	capable of reading temperature, humidity, light and pressure, SD card slot	link
MKR ETH Shield	ethernet shield	link
MKR IMU Shield	Read three-dimensional acceleration, yaw rate and magnetical field	link
MKR MEM Shield	extra flash memory (2MB) and store larger files on a Micro SD	link
MKR SD Proto Shield	features a Micro SD card holder	link
MKR RGB Shield	84 programmable RGBs in a 12×7 matrix	link
MKR GPS Shield	u-blox SAM-M8Q GNSS (Global Navigation Satellite System) module	link
MKR Therm Shield	high quality thermocouplers, and can calculate temperatures from -200°C to +700°C	link
MKR Relay Shield	two relays mounted that can be used for loads up to 24V	link
MKR Connector Carrier	It features 14 grove compatible connectors	link
MKR IoT Carrier	prototyping round shield	link
MKR Motor Carrier	easy to control servo, DC and stepper motors	link
MKR IMU Shield	three-dimensional acceleration, yaw rate and magnetical field	link
MKR M-Bus Shield	The Shield provides an M-Bus master to which other M-Bus devices such as electricity, water or gas meters	-

Arduino MKR Boards

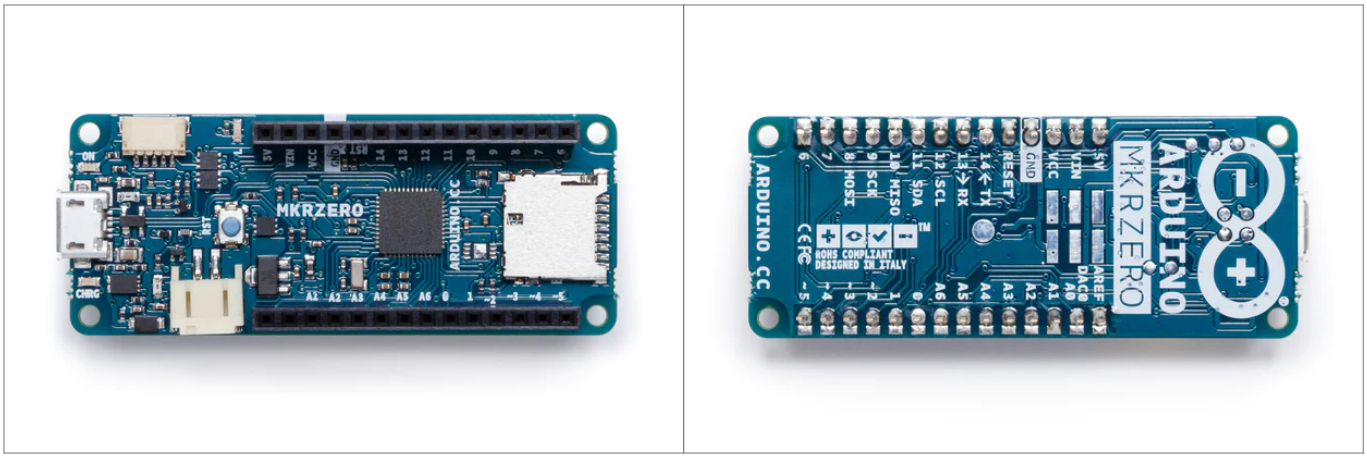
Arduino MKR ZERO

MKR ZERO has an on-board SD connector with dedicated SPI interfaces (SPI1) that allows you to play with MUSIC files with no extra hardware!

Watch out music makers, we've got some news for you! We have released two libraries for your enjoyment:

- Arduino Sound library – a simple way to play and analyze audio data using Arduino on SAM D21-based boards.
- I2S library – to use the I2S protocol on SAMD21-based boards. For those who don't know, I2S (Inter-IC Sound) is an electrical serial bus interface standard for connecting digital audio devices.

More info on Arduino site: MKR Zero

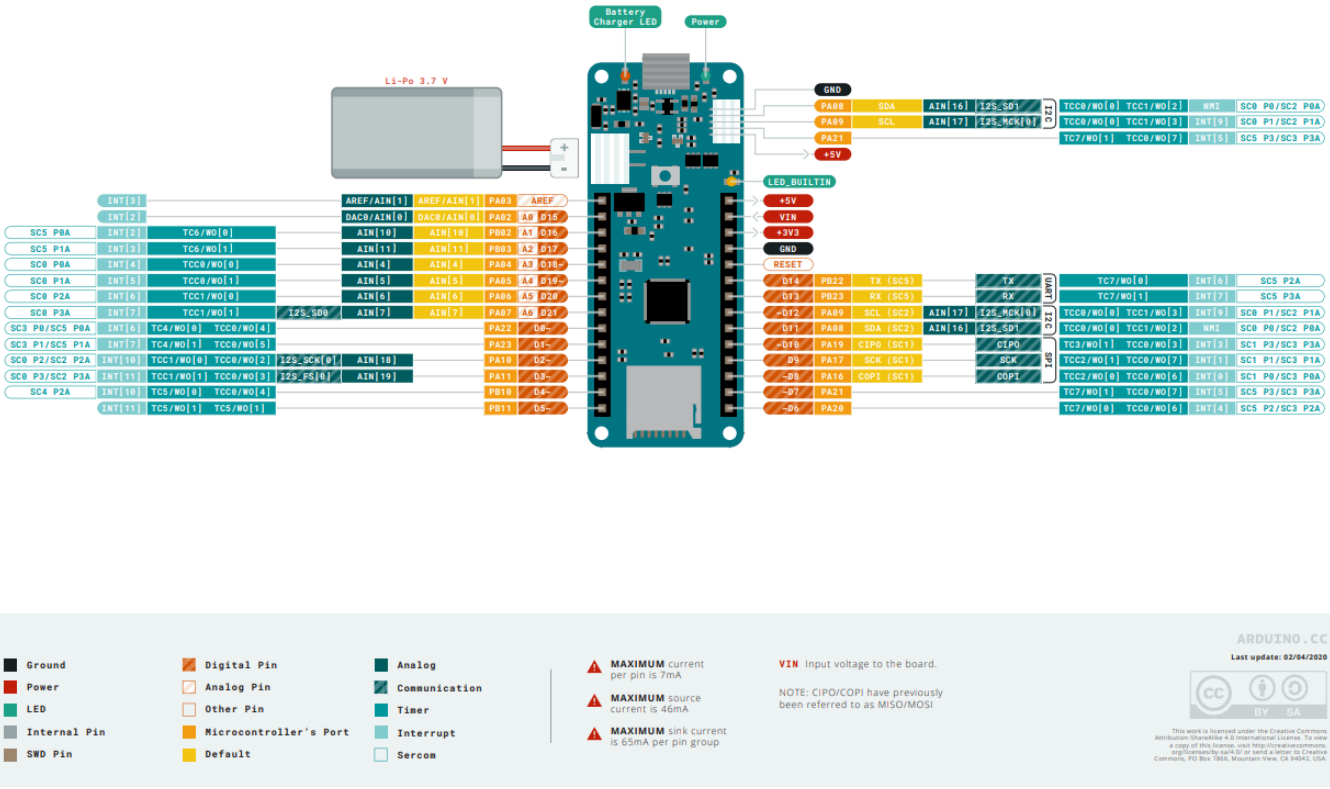


Arduino MKR ZERO Tech specs

Microcontroller	SAMD21 Cortex-M0+ 32bit low power ARM® MCU
Board Power Supply (USB/VIN)	5V
Supported Battery(*)	Li-Po single cell, 3.7V, 700mAh minimum
DC Current for 3.3V Pin	600mA
DC Current for 5V Pin	600mA
Circuit Operating Voltage	3.3V
Digital I/O Pins	22
PWM Pins	12 (0, 1, 2, 3, 4, 5, 6, 7, 8, 10, A3 - or 18 -, A4 -or 19)
UART	1
SPI	1
I2C	1
Analog Input Pins	7 (ADC 8/10/12 bit)
Analog Output Pins	1 (DAC 10 bit)
External Interrupts	10 (0, 1, 4, 5, 6, 7, 8, A1 -or 16-, A2 - or 17)

DC Current per I/O Pin	7 mA
Flash Memory	256 KB
Flash Memory for Bootloader	8 KB
SRAM	32 KB
EEPROM	no
Clock Speed	32.768 kHz (RTC), 48 MHz
LED_BUILTIN	32
Extras	Full-Speed USB Device and embedded Host

Arduino MKR ZERO Pinout



Arduino MKR FOX 1200

The MKR FOX 1200 adds **Sigfox** connectivity to your projects. Using the popular Arm® Cortex®-M0 32-bit SAMD21 processor, it also features the Microchip® Smart RF ATA8520 for Sigfox connectivity.

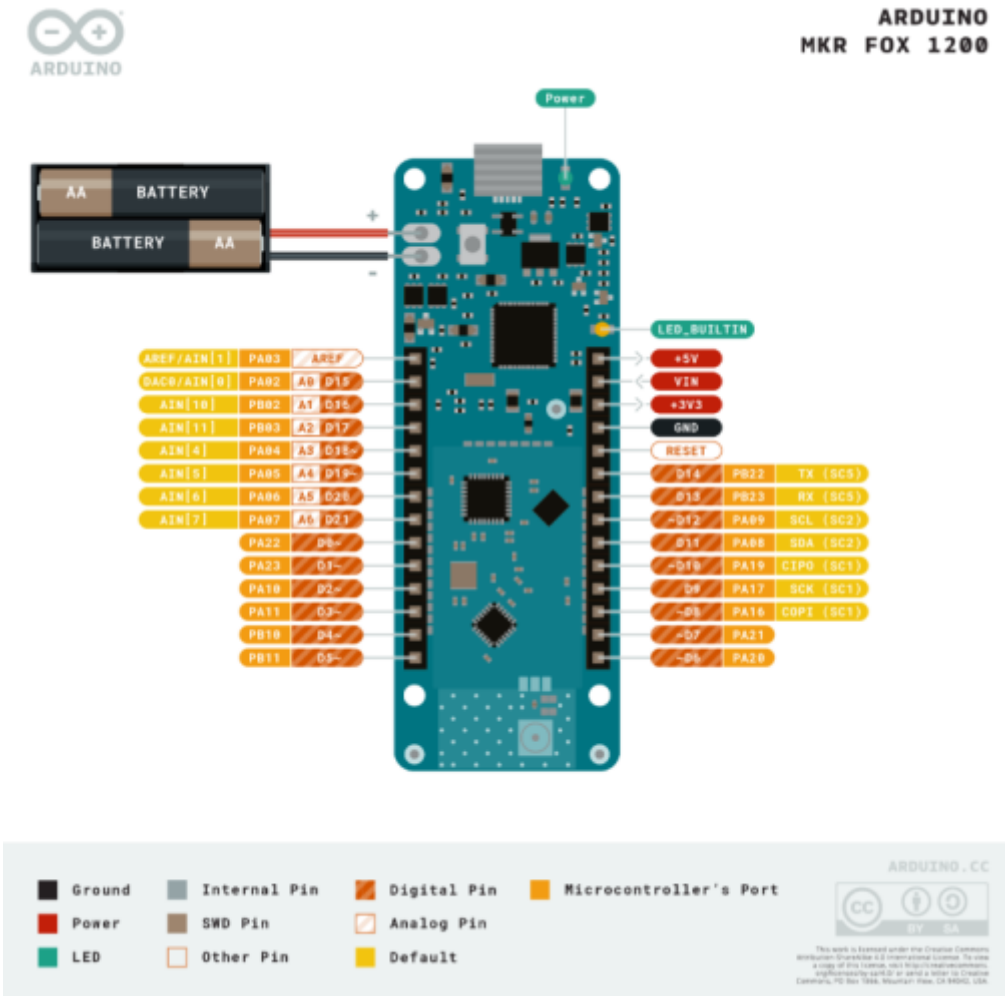
More info on Arduino site: MKR FOX 1200
More info from Sigfox: Sigfox site

Library for MKR FOX 1200: Library

Arduino MKR FOX 1200 Tech specs

Microcontroller	SAMD21 Cortex®-M0+ 32bit low power ARM MCU
USB connector	Micro USB (USB-B)
Built-in LED Pin	6
Digital I/O Pins	8
Analog Input Pins	7 (ADC 8/10/12 bit)
Analog Output Pins	1 (DAC 10 bit)
PMW Pins	13 (0 - 8, 10, 12, A3, A4)
External interrupts	10 (0, 1, 4, 5, 6, 7, 8 ,9, A1, A2)
SigFox	Microchip® Smart RF ATA8520
Working region	Europe
Secure element	ATECC508A
Carrier frequency	868 MHz
UART	Yes
I2C	Yes
SPI	Yes
I/O Voltage	3.3V
Input Voltage (nominal)	5-5.5V
DC Current per I/O pin	7 mA
Supported battery	2x AA or AAA
Battery connector	Screw terminals
Processor	48 MHz
RTC	32.768 kHz
Memory	SAMD21G18A - 256KB Flash, 32KB SRAM

Arduino MKR FOX 1200 Pinout

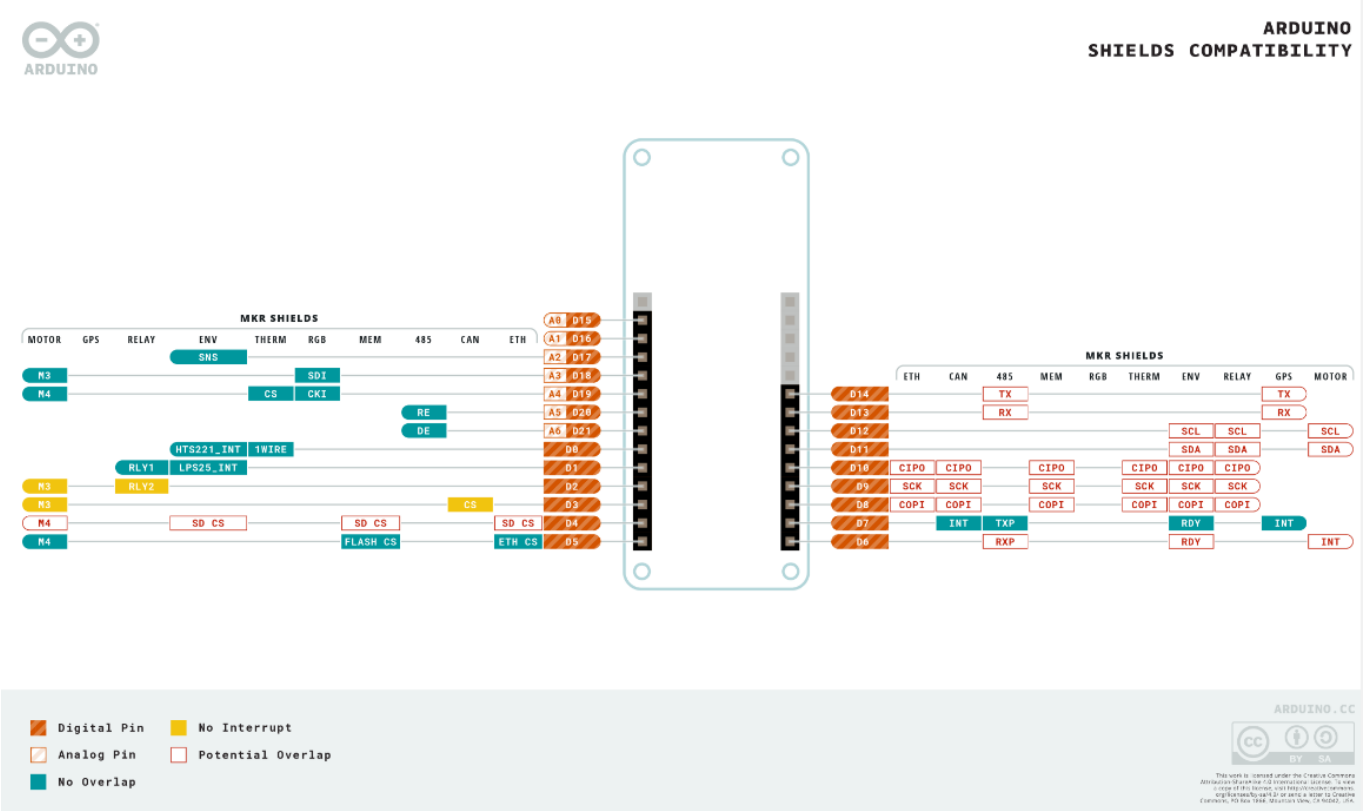


Arduino MKR Shields

MKR ETH Shield

The MKR ETH Shield features the **W5500 Ethernet** controller, that provides Internet to embedded systems, and a Micro SD Card holder for storing larger files.

Arduino MKR ETH Shield Pinout

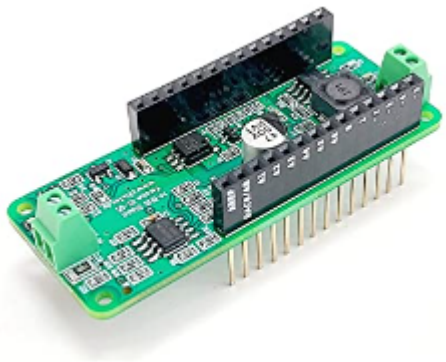


The ethernet shield “reserves” the following 5 pins:

SD CS (D4), ETH CS (D5), COPI (D8), SCK (D9), CIPO (D10)

Connector	RJ45
Controller	W5500
Speed	10/100 Mbps
Communication	SPI
Internal memory	32KB
Maximum sockets	8 individual
Supported protocols	IPv4, ICMP, TCP, UDP, ARP, IGMP, PPPoE, MQTT

MKR M-Bus Shield



This Arduino MKR Shield extends your Arduino MKR with functions for smart metering. The Shield provides an M-Bus master to which other M-Bus devices, such as electricity, water, or gas meters (with the appropriate interface) can be connected directly.

- galvanically isolated M-Bus master interface
- A maximum of 6 load units can be supplied
- external power pack (9-30V DC) required for supply
- can be combined with any Arduino MKR board

arduino, board, mkr fox 1200, mkr zero, ethernet, shield, m-bus, rs-485, can, env, sd card, rgb, gps, iot, wifi, sigfox, lora, gsm, lte-m