

## 2.2 M5MP - Module

Hier wollen wir uns die in der M5Stack Firmware enthaltenen Module ansehen.

Es gibt hier nur eine Übersicht. Wir werden uns bei den entsprechenden Anwendungen die Module näher ansehen.

Zuerst einen Blick auf die Standardmodule von Micropython auf der nächsten Folie.

Danach auf 19 Folien die Module von M5Stack. Interessante Module habe ich in **rot** geschrieben.

## In Micropython enthaltene Module:

- Builtin functions and exceptions
- `cmath` – mathematical functions for complex numbers
- `gc` – control the garbage collector
- `math` – mathematical functions
- `sys` – system specific functions
- `uarray` – arrays of numeric data
- `ubinascii` – binary/ASCII conversions
- `ucollections` – collection and container types
- `uerrno` – system error codes
- `uhashlib` – hashing algorithms
- `uheapq` – heap queue algorithm
- `uio` – input/output streams
- `ujson` – JSON encoding and decoding
- `uos` – basic "operating system" services
- `ure` – simple regular expressions
- `uselect` – wait for events on a set of streams
- `usocket` – socket module
- `ussl` – SSL/TLS module
- `ustruct` – pack and unpack primitive data types
- `utime` – time related functions
- `uzlib` – zlib decompression
- `_thread` – multithreading support

# Module

## Micropython spezifische Module:

- `btree` – simple BTree database
- `framebuf` – Frame buffer manipulation
- `machine` – functions related to the hardware
- `micropython` – access and control MicroPython internals
- `network` – network configuration
- `ubluetooth` – low-level Bluetooth
- `ucryptolib` – cryptographic ciphers
- `uctypes` – access binary data in a structured way

## In Micropython enthaltene Module für ESP32:

- `esp` – functions related to the ESP8266 and ESP32
  - Functions
- `esp32` – functionality specific to the ESP32
  - Functions
  - Flash partitions
  - RMT
  - The Ultra-Low-Power co-processor
  - Constants

## 2.2 M5MP - Module

IoTcloud/AWS

IoTcloud/Ali

IoTcloud/Azure

IoTcloud/Tencent

IoTcloud/\_\_\_init\_\_\_

IoTcloud/blynk

MediaTrans/Mqtt\_Printer

MediaTrans/TimerCam

MediaTrans/\_\_\_init\_\_\_

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MicroWebSrv/\_\_\_init\_\_\_

MicroWebSrv/microWebSocket

MicroWebSrv/microWebSrv

MicroWebSrv/microWebTemplate

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`__main__`

`collections/__init__`

`_boot`

`collections/defaultdict`

`_flow`

`collections/deque`

`_onewire`

`_thread`

`_uasyncio`

`_webrepl`

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comx/LoRaWAN

comx/\_\_\_init\_\_\_

flow/\_\_\_init\_\_\_

flow/adaptation

flow/ezdata

flow/ezdata\_queue

flow/flowDeinit

flow/m5cloud

flow/m5ucloud

flow/protocol

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hardware/\_\_init\_\_

hardware/\_led

hardware/axp192

hardware/bm8563

hardware/button

hardware/mpu6050

hardware/sh200q

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hat

hats/\_RS485

hats/\_adc

hats/\_balaC

hats/\_beetlec

hats/\_bugc

hats/\_c\_back\_driver

hats/\_c\_back\_nbiot

hats/\_cardKB

hats/\_dac

hats/\_dlight

hats/\_env

hats/\_env2

hats/\_env3

hats/\_finger

hats/\_joyC

hats/\_joystick

hats/\_ncir

hats/\_pir

hats/\_powerc

hats/\_puppy

hats/\_roverc

hats/\_servo

hats/\_servo8

hats/\_servos

hats/\_speaker

hats/\_tof

hats/\_yun



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libs/\_\_init\_\_

libs/bmm150

libs/bmp280

libs/config

libs/dht12

libs/easyIO

libs/echo

libs/emoji

libs/ethernet/\_\_init\_\_

libs/ethernet/wiznet5k

libs/ethernet/wiznet5k\_dhcp

libs/ethernet/wiznet5k\_dns

libs/ethernet/wiznet5k\_ntp

libs/ethernet/wiznet5k\_socket

libs/ethernet/wiznet5k\_wsgiserver

libs/imu

libs/ir/ir\_rx/\_\_init\_\_

libs/ir/ir\_rx/nec

libs/ir/ir\_rx/print\_error

libs/ir/ir\_tx/\_\_init\_\_

libs/ir/ir\_tx/nec

libs/lorabus

libs/m5\_espnw

libs/m5mqtt

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libs/microcoapy/\_\_init\_\_  
libs/microcoapy/coap\_macros  
libs/microcoapy/coap\_option  
libs/microcoapy/coap\_packet  
libs/microcoapy/coap\_reader  
libs/microcoapy/coap\_writer  
libs/microcoapy/microcoapy  
libs/mlx90640

libs/mstate  
libs/numbers  
libs/nvs  
libs/paj7620u2  
libs/pca9685  
libs/pid  
libs/power  
libs/qmp6988  
libs/servo  
libs/sh1107

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libs/modbus/\_\_init\_\_

libs/modbus/master/\_\_init\_\_

libs/modbus/master/uModBusConst

libs/modbus/master/uModBusFunctions

libs/modbus/master/uModBusSerial

libs/modbus/master/uModBusTCP

libs/modbus/slave/\_\_init\_\_

libs/modbus/slave/exceptions

libs/modbus/slave/functions

libs/modbus/slave/redundancy\_check

libs/modbus/slave/route

libs/modbus/slave/rtu

libs/modbus/slave/utils

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libs/sh200q

libs/sht30

libs/speak

libs/timeSchedule

libs/time\_ex

libs/urequests

libs/vl53l0x

libs/simcom/\_\_\_init\_\_\_

libs/simcom/common

libs/simcom/gps

libs/simcom/gsm

libs/simcom/lte

libs/simcom/nb

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m5stack

m5uart

m5ui

machine

math

max30100

micropython

modules/\_catm\_iot

modules/\_nb\_iot

neopixel

menu/\_\_\_init\_\_\_

menu/app

menu/cloud

menu/setup

menu/startup

menu/wifi

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network

ntptime

ntptime

simpleOTA

smartconfig

sys

uarray

ubinascii

ucollections

ucryptolib

uctypes

uerrno

uhashlib

uhashlib

uheapq

uiflow

uio

ujson

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umqtt/\_\_init\_\_

umqtt/robust

umqtt/simple

units/VFunction/\_v2\_online\_classifier

units/VFunction/\_v2\_shape\_detector

units/VFunction/\_v2\_target\_tracker

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unit

units/VFunction/\_\_init\_\_

units/VFunction/\_apriltag\_code

units/VFunction/\_bar\_code

units/VFunction/\_color\_track

units/VFunction/\_dm\_code

units/VFunction/\_face\_detect

units/VFunction/\_jpeg\_transfer

units/VFunction/\_line\_tracker

units/VFunction/\_motion

units/VFunction/\_qr\_code

units/VFunction/\_tag\_reader

units/VFunction/\_target\_track

units/VFunction/\_v2\_code\_detector

units/VFunction/\_v2\_color\_tracker

units/VFunction/\_v2\_face\_detector

units/VFunction/\_v2\_face\_recognition

units/VFunction/\_v2\_lane\_line\_tracker

units/VFunction/\_v2\_motion\_tracker

units/VFunction/\_v2\_object\_recognition



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units/\_ID

units/\_IR\_NEC

units/\_ISORS485

units/\_LoRaWAN

units/\_NBloT

units/\_RS485

units/\_RTC8563

units/\_accel

units/\_acsocket

units/\_adc

units/\_ameter

units/\_angle

units/\_angle8

units/\_bps

units/\_button

units/\_buzzer

units/\_cardKB

units/\_catm

units/\_catm\_gnss

units/\_co2\_scd40

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units/\_color

units/\_dac

units/\_dds

units/\_digi\_clock

units/\_dlight

units/\_dual\_button

units/\_earth

units/\_encoder\_led

units/\_env

units/\_env2

units/\_env3

units/\_ext\_io

units/\_ext\_io2

units/\_fader

units/\_fader8

units/\_fan

units/\_finger

units/\_gesture

units/\_gps

units/\_grove2grove

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units/\_hall

units/\_heart

units/\_imu6886

units/\_ir

units/\_joystick

units/\_joystick\_led

units/\_key

units/\_kmeter

units/\_laserrx

units/\_lasertx

units/\_lcd

units/\_light

units/\_limit

units/\_makey

units/\_microphone\_AD

units/\_microphone\_I2S

units/\_mqtt\_eth

units/\_ncir

units/\_oled

units/\_op

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units/\_pahub

units/\_pbhub

units/\_pir

units/\_relay

units/\_relay2

units/\_relay4

units/\_rfid

units/\_rgb

units/\_rgb\_multi

units/\_rotary\_encoder

units/\_scales

units/\_servo

units/\_sonic\_io

units/\_ssr

units/\_tcp\_eth

units/\_thermal

units/\_tof

units/\_tracker

units/\_tube\_pressure

units/\_tvoc

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units/\_uhf\_rfid  
units/\_ultrasonic  
units/\_uwb  
units/\_v\_function  
units/\_vibrator  
units/\_vmeter  
units/\_watering  
units/\_weight  
units/\_zigbee

uos  
urandom  
ure  
urllib/parse  
urllib/urequest  
uselect  
usocket  
ussl  
ustruct  
utils

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utime

utimeq

uwebsocket

uzlib

warnings

wav/chunk

wav/wav\_player

wav/wave

wifiCfg

wifiWebCfg

**ENDE**