Sipeed MaixCube

All-in-One AI Development Platform Based on K210 (RISC-V)

Product Overview

09-02-2022

For the most up-to-date information, visit www.mouser.com or the supplier's website.

Description

Seeed Studio Sipeed MaixCube is an all-in-one development platform based on the M1n module which is powered by the Kendryte K210 core. This kit is equipped with a camera, TF card slot, user buttons, TFT display, lithium battery, speaker, microphone and an expansion interface. The Sipeed MaixCube provides a great platform for everyone to start learning about AI development. The KendryteK210 acts as the main control chip for the MaixCube. The module has a built-in 64-bit dual-core processor chip and 8M of on-chip SRAM.

This kit has a variety of hardware acceleration units such as KPU, FPU, and FFT and the total computing power can be up to 1TOPS. This can conveniently realize machine vision/hearing algorithms of various application scenarios. The Sipeed MaixCube can also perform pre-processing work of voice scanning and voice data output. Typical applications inlcude face Ddtection, object recognition, FFT spectrum analysis, and game simulation.

Features

- All-in-one platform with rich peripherals
- K210 RISC-V 64-bit Dual-Core CPU for powerful AI applications
- Computing power up to 1TOPS for heavy machine vision applications
- Built-in FPU, KPU, FFT hardware acceleration units
- Built-in APU for high-quality audio processing
- Built-in camera, microphone, and speaker
- 1.3" TFT display
- Grove, SP-MOD, and USB Type-C interfaces
- TF card slot

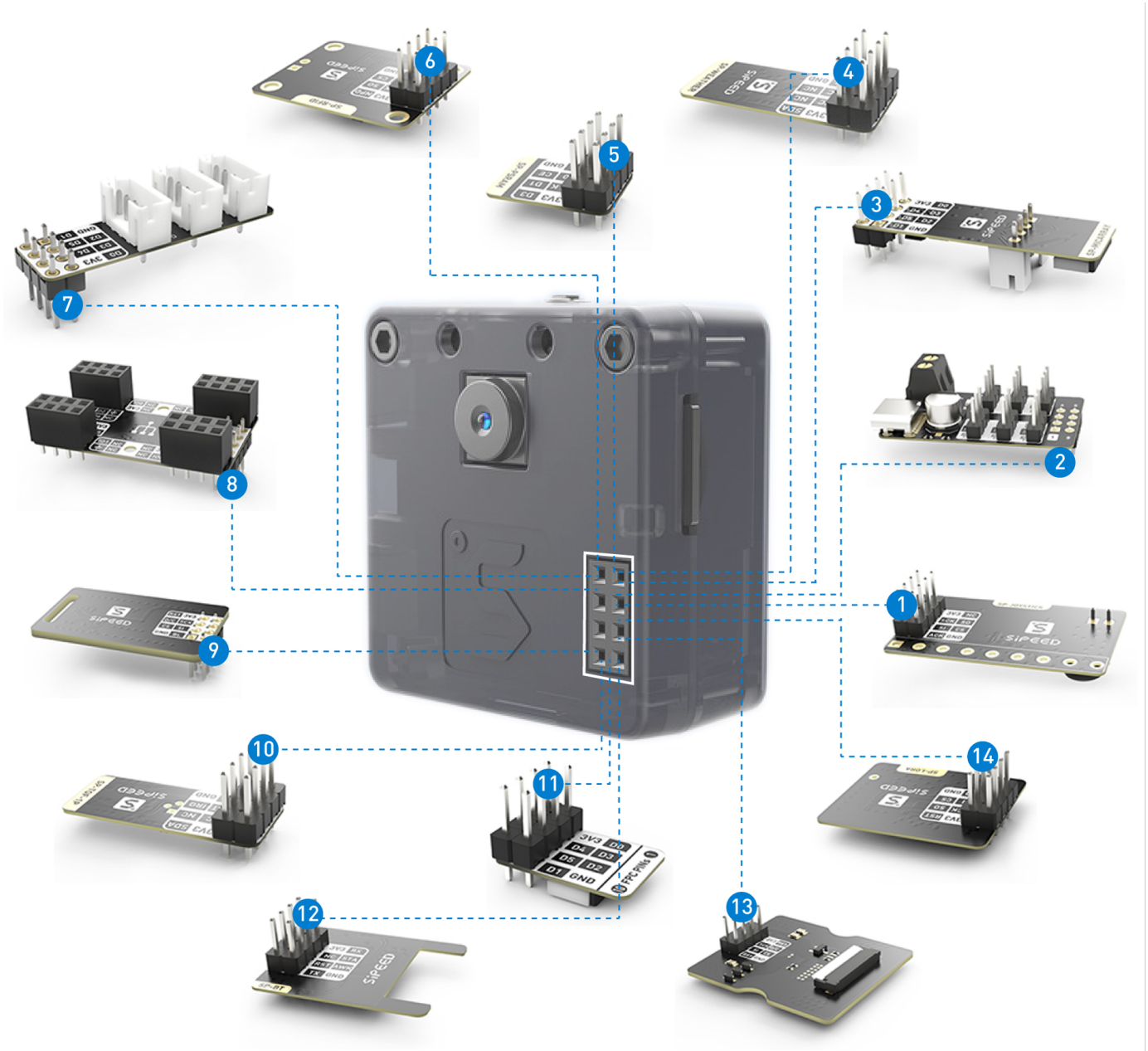
Specifications

- Core:
  - RISC-V Dual-Core 64-bit, with FPU
  - Frequency:
    - 400MHz (overclockable to 600MHz)
  - SRAM:
    - Built-in 8MByte
  - Image recognition:
    - SVGA @ 60fps / VGA @ 30fps
  - Voice recognition:
    - Microphone array (8mics)
  - Network Model:
    - Supports YOLOv3/TinyYOLOv2/face recognition
  - Deep learning framework:
    - Support frameworks such as TensorFlow, Keras, Darknet, Caffe
  - Peripherals:
    - FPIOA, UART, GPIO, SPI, PC, PS, TIMER
    - Hardware acceleration unit
    - PU convolution operation accelerator
    - FPU floating-point accelerator
    - APU Audio processor
    - FFT Fourier transform accelerator
- Power supply:
  - USB Type-C
  - Internal lithium battery (200mAh)
- MaixCube Module:
  - Onboard Peripherals:
    - 3x buttons
    - Camera
    - 2x RGB LED
    - 1.3” TFT screen
    - Electret microphone
    - 128Mbit Flash
    - Accelerometer
- Onboard Interfaces:
  - USB Type-C
  - Audio interface (supports external speakers)
  - TF card slot
  - Grove standard interface
  - SP-MOD interface (supports SP-MOD interface modules)
- Software Development:
- Operating system: FreeRTOS, Linux
- Face recognition: Recognition accuracy up to 98%
- Development environment: MaixPy IDE, PlatformIO IDE, Arduino IDE
- Programming languages: C, C++, MicroPython

Applications

- Face detection
- Object recognition
- FFT spectrum analysis
- Game simulation

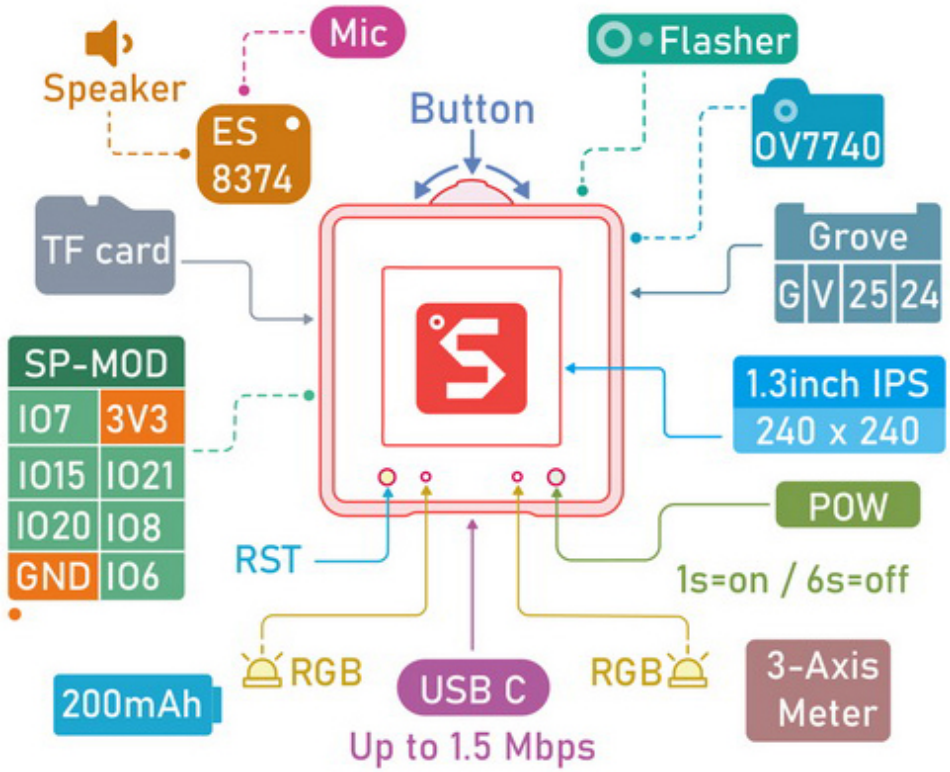
Sipeed Modules Supported by Sipeed MaixCube



1. Handle Module
2. USB In-line Module
3. Microphone Array Adapter Board
4. Weather Station Module
5. PSRAM Module
6. Credit Card Module
7. Grove Adapter Board
8. SP-MOD One-to-Multi-Adapter Board
9. 1.14 inch LCD module
10. Single point ToFu Module
11. FPC Extension Module
12. Bluetooth Module
13. Ink Screen Module
14. LoRa Module

Hardware Overview

1. 1.3 inch TFT Screen
2. Reset Button
3. Power Button
4. Grove Interface
5. SP-MOD Interface
6. TF Card Slot
7. Camera
8. Type-C Interface
9. 3-Way Button



Dimensions

Mouser Part Number

View Part

To learn more, visit https://www.mouser.com/new/seeed-studio/seeed-sipeed-maixcube/