

BOARDCON Mini1126 System on Module User Manual

Mini1126 Reference User Manual

V4.20241025

Image

Boardcon Embedded Design

www.armdesigner.com

Logo

Customize the embedded system based on Your Idea

1. Introduction

1.1. About this Manual

This manual is intended to provide the user with an overview of the board and benefits, complete features specifications, and set up procedures. It contains important safety information as well.

1.2. Feedback and Update to this Manual

To help our customers make the most of our products, we are continually making additional and updated resources available on the Boardcon website ((www.boardcon.com , www.armdesigner.com)).

These include manuals, application notes, programming examples, and updated software and hardware. Check in periodically to see what's new!

When we are prioritizing work on these updated resources, feedback from customers is the number one influence, If you have questions, comments, or concerns about your product or project, please no hesitate to contact us at support@armdesigner.com.

1.3. Limited Warranty

Boardcon warrants this product to be free of defects in material and workmanship for a period of one year from date of buy. During this warranty period Boardcon will repair or replace the defective unit in accordance with the following process:

A copy of the original invoice must be included when returning the defective unit to Boardcon. This limited warranty does not cover damages resulting from lighting or other power surges, misuse, abuse, abnormal conditions of operation, or attempts to alter or modify the function of the product.

This warranty is limited to the repair or replacement of the defective unit. In no event shall Boardcon be liable or responsible for any loss or damages, including but not limited to any lost profits, incidental or consequential damages, loss of business, or anticipatory profits arising from the use or inability to use this product.

Repairs make after the expiration of the warranty period are subject to a repair charge and the cost of return shipping. Please contact Boardcon to arrange for any repair service and to obtain repair charge information.

1 Mini1126 Introduction

1.1 Summary

The Mini1126 system-on-module is equipped with Rockchip's RV1126 build in quad-core Cortex-A7, 2.0 TOPs NPU and RISC-V MCU.

It is designed specifically for the IPC/CVR devices, AI Camera devices, intelligent interactive devices, and mini robots. The high performance and low power solution can help customers to introduce new technologies more quickly and enhance the overall solution efficiency.

1.2 Features

- Microprocessor
 - Quad-core Cortex-A7 up to 1.5G
 - 32KB I-cache and 32KB D-cache for each core, 512KB L3 cache
 - 2.0 TOPS Neural Process Unit
 - RISC-V MCU to support 250mS fast boot
 - Max 14M ISP

Memory Organization

- LPDDR4 RAM up to 4GB
- EMMC up to 32GB
- SPI Flash up to 8MB

• Video Decoder/Encoder

- Supports video decode/encode up to 4K@30fps
- Supports real-time decoding of H.264/265
- Supports real-time UHD H.264/265 video encoding
- Picture size up to 8192×8192

• Display Subsystem

- Video Output

Supports 4 lanes MIPI DSI up to 2560×1440@60fps

Supports 24bit RGB parallel output

- Image in

Supports up to 16bit DVP interface

Supports 2ch MIPI CSI 4lanes interface

• I2S/PCM/ AC97

- Two I2S/PCM interface
- Support Mic array Up to 8ch PDM/TDM interface
- Support PWM audio output

• USB and PCIE

- Two 2.0 USB interfaces
- One USB 2.0 OTG, and one 2.0 USB hosts

• Ethernet

- RTL8211F onboard
- Support 10/100/1000M

• I2C

- Up to five I2Cs
- Support standard mode and fast mode(up to 400kbit/s)

• SDIO

- Support 2CH SDIO 3.0 protocol

• SPI

- Up to two SPI controllers,
- Full-duplex synchronous serial interface

• UART

- Support up to 6 UARTs
- UART2 with 2 wires for debug tools
- Embedded two 64byte FIFO
- Support auto flow control mode for UART1-5

- ADC
 - Up to three ADC channels
 - 12-bit resolution
 - Voltage input range between 0V to 1.8V
 - Support up to 1MS/s sampling rate
- PWM
 - 11 on-chip PWMs with interrupt-based operation
 - Support 32bit time/counter facility
 - IR option on PWM3/7
- Power unit
 - RK809 on board
 - 5V input and RTC power input
 - Build-in Audio Codec

1.3 Mini1126 Block Diagram

1.3.1 RV1126 Block Diagram

RV1126

System Peripheral

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Video Input Interface

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Video Output Interface

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Multi-Media Processor

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External Memory Interface

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Embedded Memory

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1.4 Mini1126 specifications

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1.5 Mini1126 PCB Dimension

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1.6 Mini1126 Pin Definition

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1.7 Development Kit (EM1126)

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1. Power in DC 12V
2. Ethernet
3. 2x USB Host
4. USB OTG
5. Audio out
6. Digi MIC
7. Speaker
8. MIC
9. MIPI_CS11 Camera
10. MIPI_CS10 Camera
11. WiFi & Bluetooth
12. GPIO
13. SPI
14. UART4
15. MIPI_DSI LCD
16. IR
17. CAN
18. RS485
19. Power
20. Recovery
21. Micro SD
22. Debug
23. I2S
24. ADC
25. Battery

2 Hardware Design Guide

2.1 Peripheral Circuit Reference

2.1.1 Battery Charge Circuit

Image

Image

Close to RK809

Image

a) Close to BAT

8.4V Lion Battery used

2.1.2 Debug Circuit

Image

2.1.3 USB OTG Interface Circuit

This circuit is used to improve usb compatibility.

Note:

These components are close to R20 to avoid long branches.

Image

2.2 PCB Footprint

2.3 B2B connector

Header for carrier board: DF12NC(3.0)-80DP-0.5V(51)

■ Header [Without Solder Tab]

Image

- Stacking Height : 3mm Product

Unit : mm

Table

Receptacle for CPU board: DF12NC(3.0)-80DS-0.5V(51)

■ Receptacle [Without Solder Tab]

Image

- Stacking Height : 3mm Product

Unit : mm

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2 Related Posts

Documents / Resources

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References

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