



Features

CPU

- Quad-core ARM Cortex-A55 processor

GPU

- ARM G52-2EE
- OpenGL ES1.1/2.0/3.0/3.1/3.2, Vulkan 1.1, OpenCL 2.1

NPU

- 1TOPs@INT8
- Support INT8/INT16/FP16/BFP16
- Support deep learning frameworks: TensorFlow, Caffe, Tflite, Pytorch, Onnx, Android NN, etc

Memory

- 32bit DDR4/3/3L/LPDDR4/4X/3
- Support eMMC 5.1, SFC

Display

- Single display engine
- HDMI2.0
- eDP 1.3
- Dual MIPI-DSI, combo with single LVDS
- 24bit RGB/BT1120
- EBC interface

Multi-Media

- 4K H.265/H.264/VP9 video decoder
- 1080p@60fps H.264/H.265 video encoder

Video input

- 8M Pixel ISP
- 1*4lanes or 2*2lanes MIPI CSI-2 and DVP interface

Audio Interface

- I2S0/I2S1 with 8 channels
- I2S2/I2S3 with 2 channels
- SPDIF0
- PDM0 with 8 channels
- TDM0 with 8 channels
- VAD (Voice Activity Detection)

High Speed Interface

- One USB 3.0 Host, two Sata3.0, one PCIe2.1, Share two serdes lanes
- Dual USB 2.0 host and one USB 2.0 otg
- Single RGMII interface

Security

- ARM Trustzone security extension
- Secure Video Path
- Secure JTAG to debug
- Secure boot
- OTP
- Crypto (AES/TDES/SM4/SM3/SHA256/SHA512 /RSA)

SDK

- Linux4.19 & 5.10
- Android11 & 12

Device Information

- Package:
- FCCSP565L
- Body: 15.5mm x 14.4mm
- Ball pitch: 0.4mm+0.6mm

RK3566 Target Applications

- Tablet
- E-book Reader
- Dictionary Pen
- Desk Lamp
- Robot Vacuum
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Block Diagram

RK3566

Cortex-A55 Quad-Core

Core0

32KB L1 I-Cache

32KB L1 D-Cache

NOEN/FPU/Crypto

Core1

32KB L1 I-Cache

32KB L1 D-Cache

NOEN/FPU/Crypto

Core2

32KB L1 I-Cache

32KB L1 D-Cache

NOEN/FPU/Crypto

Core3

32KB L1 I-Cache

32KB L1 D-Cache

NOEN/FPU/Crypto

512KB L3-Cache

NPU

Multi-Media Processor

4K Video Decoder

1080p Video Encoder

JPEG Codec

8M ISP

GPU Mali-G52-2EE

2D Graphics Engine

IEP

External Memory Interface

eMMC 5.1

SD3.0/MMC4.51

Nor Flash / Async SRAM

SDR/DDR/LBA Nand Flash

32Bit DDR Controller
(DDR3/DDR3L/DDR4/LPDDR4/LPDDR4X)

System

Clock & Reset

WDT

PLL x9

Timer x6

Secure Timer x2

PMU

Crypto

Interrupt Controller

DMAC x2

SARADC x4

TSADC

MCU

Mailbox

Multi-Media Interface

VOP
(Same Source, Dual Display)

HDMI2.0a

eDP1.3

Single LVDS/
Dual MIPI-DSI_TX

E-Ink Interface

16bits Camera I/F

MIPI-CSI_RX 4 Lane

Connectivity

PCIe2.1/SATA3.0

USB3.0 HOST/SATA3.0

USB2.0 HOST x2

USB2.0 OTG

I2S/TDM(8ch) x2, one
for HDMI

I2S/PCM(2ch) x2

PDM(8ch)

SPDIF(8ch)

Audio PWM

Digital Acodect

VAD

ISO7816

UART x10

SPI x4

SDIO 3.0

Ethernet GMAC x1
(10/100/1000M)

I2C x6

PWM x16

GPIO x142

Embedded Memory

SRAM (64KB)

ROM (32KB)

OTP(8K bit)

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Typical Application Diagram

