

## TC-RK3566 Features

### TC-RK3566 Highlights 1: High performance CPU & GPU

- New ARM architecture and advanced process brings higher performance and power efficiency

### TC-RK3566 Highlights 2: New generation (3rd Gen) Rockchip ISP

- up to 8M@30fps processing power, supporting time-sharing and multiplexing dual camera
- Powerful HDR function makes the image clear under backlight or strong light conditions
- Support dual channel simultaneous zooming output
- Noise cancellation function, so that the image under low light conditions is also delicate
- Support defogging function, can see clearly even in haze
- Support lateral correction of LDCH to remove the distortion caused by the sensor lens

### TC-RK3566 Highlight 3: Powerful multimedia decode/encode capability

- Support 4KP60 H.264/H.265/VP9 and other formats HD decoding
- Support simultaneous decoding of multiple video sources
- Support HDR10, excellent performance in color and dynamic range
- Support image post-processing, deinterleaving, denoising, color enhancement, resolution increase
- Support 1080p 60fps H.264 and H.265 format encoding
- Support dynamic bit rate, frame rate, resolution adjustment

## TC-RK3566 Highlight 4: Integrated efficient RKNN AI processing unit

- NPU with 0.8TOPs computing power
- Embedded neural network hardware accelerator, support INT8, INT16, FP16 efficient operation
- NPU hardware natively supports technologies such as pre-processing merging, channel quantization, and zero skipping
- Support lossless compression of INT8, INT16, FP16 neural network parameters
- The NPU core supports ordinary convolution, depth separable convolution, deconvolution, hole convolution, fully connected layer and pooling layer
- NPU internal blocks include multiply-add operations, activation, LUT and precision conversion units, and support custom layer construction
- Support one-click model conversion, support Caffe/TensorFlow/TF-Lite/ONNX/PyTorch/Keras/Darknet mainstream framework models

Thinkcore

# RK3566™ Gold Finger Development Board



Equipped with RK3566 quad-core 64-bit processor, and integrated with dual-core GPU and high-efficiency NPU, the core board supports PCIe2.1 and SATA3.0 interfaces for large hard disk expansion and supports various operating systems. Backplane reference design and other open resources are provided for users to make further customization.

RK3566

Powerful smart chip

ROCKCHIP RK3566 COTEX-A55 QUAD CORE 64 BIT





Integrated RKN NPU  
AI accelerator, 1Tops@INT8



low power  
consumption



A variety of  
interfaces



VPU can achieve 4K 60fps  
H.265/H.264/VP9 video decoding



Supports various  
operating systems



8GB large RAM,  
all-data-link ECC

# RK3566 QUAD-CORE 64-BIT PROCESSOR

RK3566 Quad-core 64-bit Cortex-A55 processor has frequency up to 1.8GHz.

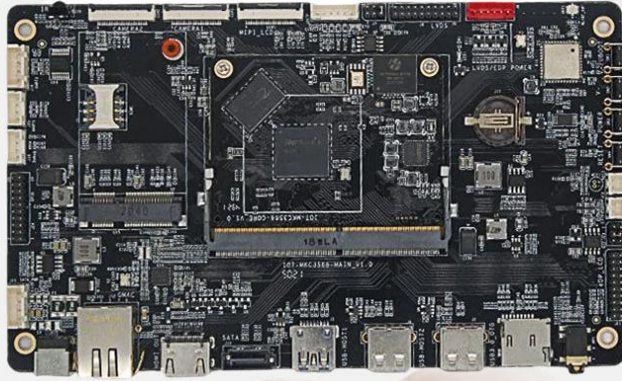
With 22nm lithography process, it features low power consumption and high performance.



## Small and lightweight

Ultra-thin design, motherboard thickness of 13mm, can be applied to a variety of equipment with ultra-thin needs

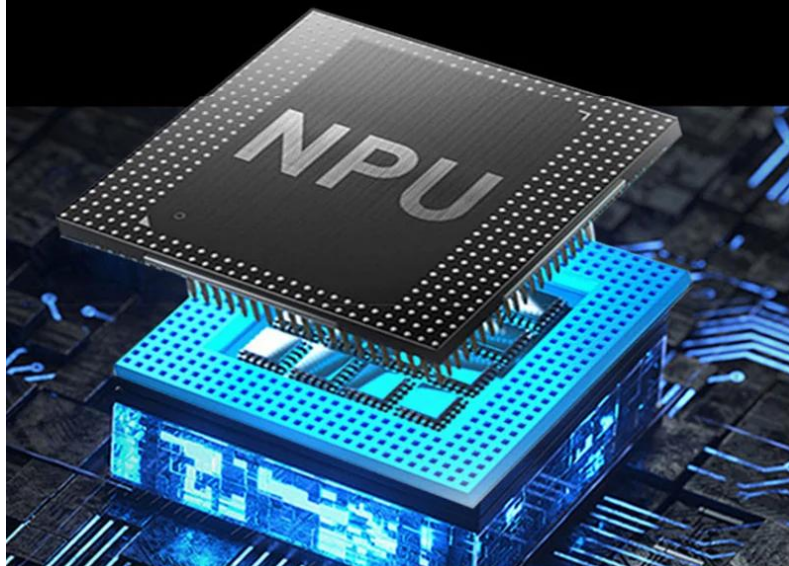
## Thin•Light•Simple



# HIGH-PERFORMANCE NPU

Integrated RKNN NPU AI accelerator, 0.8Tops@INT8

Supports one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet





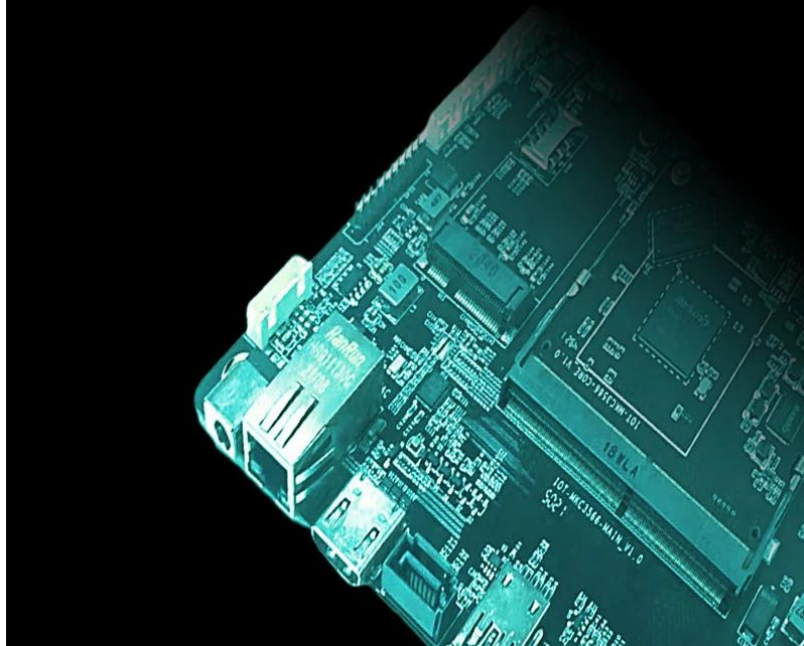
**4K**  
HDR 400

# SATA 3.0 HIGH-SPEED INTERFACE

Expand the standard 7-core data cable interface of the ultra-large capacity onboard standard

SATA hard disk, and support the expansion of the SATA hard disk,

It has the advantages of high-speed read and write and mass storage.



## Applications



Smart home device



Healthcare kiosk



Fitness equipment



Vending machine



# SATA 3.0 HIGH-SPEED INTERFACE

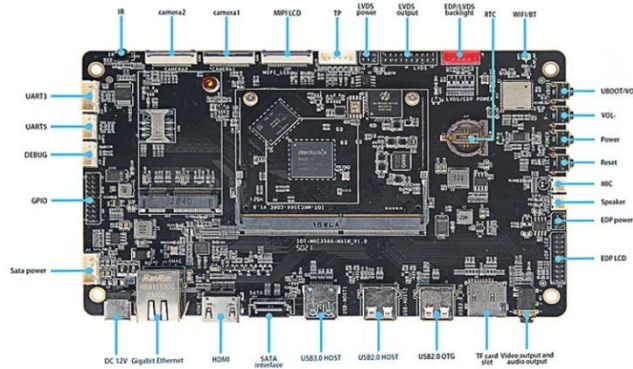
Expand the standard 7-core data cable interface of the ultra-large capacity onboard standard SATA hard disk, and support the expansion of the SATA hard disk. It has the advantages of high-speed read and write and mass storage.

Large 8GB

All Data Link ECC

## To form high-performance mainboard

The core board with SODIMM 260P Interface can be combined with a backplane to form a complete high-performance industrial mainboard delivering more powerful performance, which can be directly applied to various smart products to accelerate the product development process.



### RK3566A

<b>System</b> <ul style="list-style-type: none"> <li>Clock &amp; Reset</li> <li>WDT</li> <li>PLL x 9</li> <li>Timerx6</li> <li>Secure Timers6</li> <li>PWMx16</li> <li>Crypto</li> <li>Interrupt Controller</li> <li>DMAC</li> <li>SAR-ADCx4</li> <li>TSADC-ADC</li> </ul>	<b>Cortex-A55 Quad-Core</b> <table border="1"> <tr> <td>Core0 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto</td> <td>Core1 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto</td> </tr> <tr> <td>Core2 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto</td> <td>Core3 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto</td> </tr> </table> <p>512KB L3-Cache</p>	Core0 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto	Core1 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto	Core2 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto	Core3 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto	<b>Connectivity</b> <ul style="list-style-type: none"> <li>USB3.0 HOSTx1</li> <li>USB2.0 OTG x1</li> <li>USB2.0 HOST x1</li> <li>I2S/TDM(8ch)x1</li> <li>I2S/PCM(2ch)x2</li> <li>PDM(8ch)</li> <li>SPDIF(8ch)</li> <li>ISOT7836</li> <li>UARTx10</li> <li>SPiix4</li> <li>SDIO 3.0</li> <li>Ethernet GMACx1 (10/100/1000M)</li> <li>I2C x6</li> <li>GPIOx142</li> </ul>
Core0 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto	Core1 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto					
Core2 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto	Core3 32K L1 I-Cache/D-Cache NOEN/FPU/Crypto					
<b>Multi-Media Interface</b> <ul style="list-style-type: none"> <li>VOP (Single display)</li> <li>HDMI2.0a</li> <li>eDP1.3</li> <li>Single channel LVDS/MPI-DSI_TX 4Lane</li> <li>E-link Interface</li> <li>16bits Camera I/F</li> <li>MIPi-CSI_RX 4 Lane</li> </ul>	<b>Multi-Media Processor</b> <ul style="list-style-type: none"> <li>0.5T NPU</li> <li>Mali-G52-2EE GPU</li> <li>1080p Video Encoder</li> <li>2D Graphics Engine</li> <li>JPEG Decoder</li> <li>4K Video Decoder</li> <li>8M ISP</li> <li>IEP</li> </ul>					
	<b>External Memory Interface</b> <ul style="list-style-type: none"> <li>eMMC 5.1</li> <li>Nor Flash /Async SRAM</li> <li>SD3.0/MMC4.51</li> <li>SDR/DDR/LBA Nand Flash</li> <li>32Bit DDR Controller (DDR3/DDR3L/DDR4) (LPDDR3/LPDDR4/LPDDR4x)</li> </ul>	<b>Embedded Memory</b> <ul style="list-style-type: none"> <li>SRAM (64KB)</li> <li>ROM (32KB)</li> <li>OTP(8K bit)</li> </ul>				

## Abundant resources for customization

A complete SDK, development documents, examples, technology documents, tutorials and other resources are provided for users to make further customization.



## Supports various operating systems

It supports Android, Ubuntu Buildroot+QT, OpenWRT, Debian and other operating systems, stable and reliable.

