T-CHIP TECHNOLOGY

EC-R3566PC

Quad-Core 64-Bit Embedded Computer

V1.0

Update history

Version	Date	Details
V1.0	2021-6-2	Original version

Directory

1. Overview

The embedded computer is equipped with Rockchip quad-core processor RK3566 which is configured with dual-core GPU and high-performance NPU, supporting up to 8G RAM. Providing various interfaces, it is suitable for applications such as smart NVR, cloud terminal, IoT gateway and industrial control.

1. **RK3566 quad-core 64-bit processor**
   RK3566 quad-core 64-bit Cortex-A55 processor has frequency up to 1.8GHz — the efficiency is greatly improved. With 22nm lithography process, it features low power consumption and high performance.

2. **8GB large RAM, all-data-link ECC**
   It supports up to 8GB RAM with up to 32Bit width, and supports all-data-link ECC, making data safer and more reliable, and meeting the requirements of running large-memory products.

3. **Integrated co-processors**
   It is integrated with dual-core GPU, high-performance VPU and high-efficiency NPU. The GPU supports OpenGL ES3.2/2.0/1.1, Vulkan1.1. The VPU can achieve 4K 60fps H.265/H.264/VP9 video decoding and 1080P 100fps H.265/ H.264 video encoding. The NPU supports one-click switching of mainstream frameworks like Caffe/TensorFlow.

4. **M.2 interface to expand**
   The onboard M.2 PCIe2.0 interface can be connected with NVMe SSD, owning the advantages of high-speed reading and writing and large storage.

5. **High-quality metal enclosure**
   Equipped with high-quality metal enclosure, the space-saving computer delivers efficient heat dissipation and can be flexibly embedded in various intelligent devices.

6. **More interfaces for more possibilities**
   With HDMI2.0, USB3.0, USB2.0 and other interfaces, it can be directly used for external device control and expansion.

7. **Various systems supported**
   It supports Android, Ubuntu, Buildroot+QT, Station OS and other systems with stable and reliable operation.

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

9. **A wide range of applications**
   This computer can be widely used in smart NVRs, cloud terminals, IoT gateways, industrial control, edge computing, face recognition gates, NASs, etc.

2. Specifications

Basic Specifications	
SOC	RockChip RK3566
CPU	Quad-core 64-bit Cortex-A55, 22nm lithography process, frequency up to 1.8GHz
GPU	ARM G52 2EE Supports OpenGL ES 1.1/2.0/3.2. OpenCL 2.0. Vulkan 1.1 Embedded high-performance 2D acceleration hardware
NPU	0.8Tops@INT8, integrated high-performance AI accelerator RKNN NPU Supports one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet
VPU	Supports 4K 60fps H.265/H.264/VP9 video decoding Supports 1080P 100fps H.265/H.264 video encoding Supports 8M ISP
RAM	1GB / 2GB / 4GB / 8GB LPDDR4 32Bit,supports all-data-link ECC
Storage	8GB / 16GB / 32GB / 64GB eMMC Supports 2242 NVMe SSD (M.2 PCIe 2.0) TF-Card Slot x1 (Expand with TF card)
Hardware Features	
Ethernet	1×GbE (RJ45, 1000 M bps)
WiFi	Supports 2.4GHz/5Gz dual-band WiFi (802.11 a/b/g/n/ac) Supports BT5.0
Display	1 × HDMI2.0. Supports 4K@60fps output
Audio	1 × HDMI audio output 1 × Earphone output
Power	5V (Via Type-C port)
Interface	1×HDMI2.0, 1×USB3.0, 1×USB2.0, 1×Type-C(OTG)
OS / Software	
OS	Android 11.0, Ubuntu 18.04, Buildroot + QT, Station OS
General	
Size	93.5mm × 82mm × 20mm
Operating Temperature	-10℃ ~ 60℃
Storage Temperature	-20℃ ~ 70℃
Storage Humidity	10% ~ 80 %

3. Size

4. Interface definitions

HDMI 2.0
(4K@60fps)

Audio
(3.5mm)

Type-C
OTG & DC 5V

RJ45 Ethernet
(1000Mbps)

Power Key

USB 3.0   USB 2.0   TF Card

Company profile

    T-Chip Intelligent Technology (Zhongshan) Co., Ltd. , established in 2005, has more than ten years of technological product research and development capabilities, and has nearly 100 patents and software copyrights. As a national high-tech enterprise, we focus on the research and development, production and sales of open source smart hardware, Internet of Things, and digital audio products, while also provide overall solutions with smart hardware products.

    T-Chip is an IDH (Independent Design House) officially authorized by Rockchip in Fuzhou, and also a strategic partner of Rockchip, with a close cooperative relationship for more than 10 years.

    Firefly is a brand established by T-Chip, with open source community and online store. Firefly products include core boards, mainboards, embedded computers, cluster servers, development kits and other products. Currently, we have more than 100,000 users, including more than 10,000 enterprise users such as Arm, Google, Baidu, Tencent and Alibaba.

    Firefly team has more than 70 R&D members, with excellent research and development capabilities of schematic design, PCB layout, board mass production, embedded development, system development, application development and so on. We accelerate the research and development process for many technology entrepreneurs and start-ups, and provide professional technical services.

    Make technology simpler, Make life smarter - is the idea of Firefly team. We hope that through Firefly's open source products and technical services, the research and development of various technological products will become efficient and simple, and intelligent technology can be integrated into life.

    Firefly is committed to providing enterprise customers with long-term stable and reliable industrial products and services, and continuously creating value for customers.

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