The R11 integrates a single-core ARM Cortex™-A7 CPU that operates at speed up to 1.2GHz. A 64MB DDR2 is embedded in the R11. The R11 includes full functions such as dual-mic voice interaction, 720p screen display, slide and touch interaction, 720p video record, etc. The integrated video engine supports H.264 1080p@30fps decoder and H.264 720p@60fps encoder. Audio subsystem includes integrated audio codec and I2S/PCM/TDM interface. The R11 includes rich interfaces such as MIPI CSI, DVP camera interface, RGB/LVDS LCD output, etc. Besides, the R11 can support TINA OS, MINI GUI. The R11 is qualified to industrial standard in white electricity.

Overview
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Highlights
Dual-mic middle-near field intelligent voice interaction
The R11 integrates ADC, DAC, and I2S/TDM interface, supports FPU and NEON, which meets requirements in dual-mic noise reduction, AEC, wake-up, local command word algorithm and cloud ASR, IOT interaction functions. The R11 is an ideal choice of middle-near field voice interaction solution.

720p display and touch interaction
The R11 integrates 720p@60fps RGB/LVDS interface, and H.264 1080p@30fps video decoder, and supports on-line media playback, TINA OS, MINI GUI.

Powerful camera function
The R11 integrates MIPI CSI, DVP, 5M ISP, and H.264 720p@60fps encoder, which can implement on-line video calling, image identification function.

Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tr>
<td>CPU</td>
<td>• ARM® Cortex™-A7 @1.2GHz</td>
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</table>
| Video    | • Supports H.264 encoder up to 720p@60fps  
           | • Supports H.264 and JPEG/MJPEG decoder up to 1080p@30fps |
| ISP      | • Integrated ISP up to 5M pixels  
           | • Supports two channel outputs for display and encoding respectively  
           | • Supports various input and output formats  
           | • Supports AE/AF/AWB  
           | • Supports saturation adjustment/noise reduction/defect pixel correction/distortion correction |
### Video Input/Output
- Supports 8/10/12-bit parallel CSI and 2-lane MIPI CSI2
- Supports BT1120 input
- Supports capture resolution up to 5M with parallel interface
- Video capture resolution up to 1080p@30fps
- Supports RGB LCD output, up to 1024x768@60fps
- Supports Allwinner’s next-gen SmartColor display technology for better visual effects for images & videos

### Memory
- SIP 16-bit DDR2

### Audio Codec
- Supports two ADC channel and two DAC channels
- Supports one stereo headphone output
- Supports one differential microphone input

### Security Engine
- Supports AES/DES/TDES, SHA1 and MD5

### Connectivity
- SDIO, LRADC, SPI, TWI, UART, PWM, USB
- Supports Linux OS
- Supports Linux OS

### Package
- eLQFP 128 (including one built-in DDR2)

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**Block Diagram**

**System**
- RTC
- Timer/HS-Timer
- 8-CH-Timer
- Crypto Engine AES/DES/3DES/SHA1
- BROM SPI NAND/NOR flash SD/TF Card/eMMC

**Audio**
- Audio codec
- I2S/PCM

**Display**
- DE2.0
- RGB/LVDS LCD

**Video Engine**
- Video Decoder H.264/MJPEG/JPEG 1080P@30fps
- Video Encoder H.264 720p@60fps
- 32KB L1 I-Cache
- 32KB L1 D-Cache
- 128KB L2 Cache
- Parallel CSI 5M
- HawkView™ ISP 8M@24fps
- MIPI CSI 2lane 5M@30fps

**CPU**
- 32KB L1 I-Cache
- 32KB L1 D-Cache
- 128KB L2 Cache

**Image**
- MIPI CSI 2lane 5M@30fps

**Connectivity**
- USB2.0 OTG
- EMAC
- SPI
- TWI x 2
- UART x 3
- PWM
- LRADC

**Memory**
- SIP DDR2
- SD2.0/eMMC4.41
- SPI NAND flash/SPI NOR flash

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**ABOUT ALLWINNER**
Allwinner Technology is a leading fabless design company dedicated to smart application processor SoCs and smart analog ICs. Its product line includes multi-core application processors for smart devices and smart power management ICs used by brands worldwide.

With its focus on cutting edge UHD video processing, high performance multi-core CPU/GPU integration, and ultra-low power consumption, Allwinner Technology is a mainstream solution provider for the global tablet, internet TV, smart home device, automotive in-dash device, smart power management, and mobile connected device markets. Allwinner Technology is headquartered in Zhuhai, China.

**CONTACT US**
For more product info, please contact service@allwinnertech.com, or scan the QR code to follow us on Wechat.

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