T41 Cost-effective AI Video Processor

T41 key features: 1.2T@int8, professional ISP and video coding, cost-effective, extreme low power consumption, next-generation battery product application. T41 series provide rich version selection to meet different product requirements.

CPU

- XBurst2 Dual Core 1.0~1.4GHz
- 512bit SIMD ISA
- 128KB L2 cache

MCU

- 700MHz RISC-V coprocessor
- RV32IM instruction set

AI Engine

- 1.2Tops@int8, 4.8Tops@int4
- Support int16/int8/int4/int2 bit width
- Magik AI algorithm develop platform available

AI Pre/Post-Processing

- Color conversion, Resize
- Hardware matrix operations

Video Encoder

- H.264/H.265/JPEG Encoder
- Maximum performance:3840x2160@20fps
- Support CBR/VBR/SVBR control, 8 ROIs
- JPEG snapshot at 8 megapixels

Image Signal Processor

- 3A(AE,AWB,AF) function
- BLC, LSC, CSC, DPC, Gamma, Defog
- Adaptive Dynamic Range Compression
- 2 frames WDR (DOL/frame)
- Adaptive Edge-Based Demosaic
- Adaptive Local Contrast Enhancement
- Multi-Level NR(2DNR/3DNR) and sharpening
- X+Y Lens Distortion Correction
- Scaler, Clip, Flip and Mirror, 90/270 rotation

Video Input Interface

- DVP interface
- BT601/BT656/BT1120 interface
- MIPI-CSI interface

Video Output Interface

- Smart LCD interface 6800 and 8080
- BT656 interface

Audio System

- Integrated Audio Codec
- Audio 3A function(AEC/ANR/AGC)
- Max 4 channel DMIC

Security Engine

- AES, DES , RSA and HASH
- Digital True Random Number Generator

Memory Interface

- DDR2/DDR3/DDR3L/LPDDR2/LPDDR3
- SPI Nor Flash/SPI Nand Flash
- MSC/SD Card interface
- eMMC interface

Peripherals

- I^2C, SPI, UART, GPIO, PWM, SDIO
- USB 2.0 OTG
- Ethernet MAC, RMII
- High-Precision RTC

Boot

- Boot from SPI/USB/MSC
- Support secure boot

Physical Specifications

- Package: 0.65 pitch BGA / 0.35pitch QFN96
- Low power consumption

T41version selection brief introduction:

Product	Version
Low-cost AI IPC	T41LQ
Cost-effective Professional AI IPC	T41LQ, T41NQ, T41N, T41XQ
Next-generation Battery Camera	T41ZL, T41ZN, T41ZX
AIoT/SVIoT	T41A

Note: For details about versions, please refer to *T41 Chip version Instruction.*