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Industry Information

Ingenic T30 development guide, Ingenic original factory developmen

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Ingenic T30 development guide, Ingenic original factory development materials, Yijie editor con introduce. ISVP SDK, the software development kit, including API library, open source source code Samples, etc. Developers can quickly develop product functions through the SDK.

The following is an overview of the contents of the ISVP SDK:

Source: Yijie Chip Agent

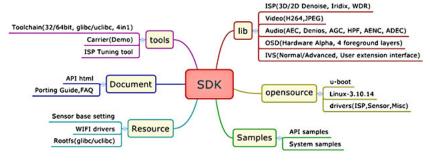


图 1-1 SDK 组成结构

SDK hierarchy

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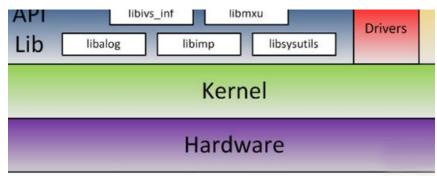


图 1-2 SDK 层次机构

- Hardware: The hardware layer, completes specific hardware functions such as I/O.
- linux kernel: the kernel layer. Complete basic system functions and define hardware resources
- drivers: ko module driver, hardware operations can be performed through the driver
- API lib: Interface library, which realizes the abstraction of hardware functions and facilitates the developr application layer. The API library has five main parts:
- libimp: Multimedia function library. Such as H264 encoding, JPEG encoding, IVS and audio, etc.
- * libsysutils: system function library. Such as restarting, setting the system time and battery function
- ◆ libalog: ISVP-SDK log implementation library
- libivs inf: IVS algorithm library, including cross-line detection, perimeter prevention, etc.
- libmxu: 128-bit mxu accelerated instruction operator library
- Application: Application layer. Realize functional logic, etc.
- Application recommends using the API provided by the SDK library and cooperating with drivers. For some special functional requirements, you can also directly call the kernel interface for develop
- 2. T30 must read
- 2.1 Uboot compilation
- Uboot compilation process:

u-boot can be compiled separately without relying on other codes. The board configuration file of T30 u-k located in include/configs/isvp_t30.h. The default compilation configuration file is described in Table 3-1.

表 3-1 T30 芯片对应 uboot 编译文件

| 芯片型号 | 编译命令 | 说明 | | | |
|------|--------------------------------|--|--|--|--|
| T30N | make isvp_t30_sfcnor | 表示编译 norflash 启动的 uboot, 针对 T30N 芯片 | | | |
| T30L | make isvp_t30_sfcnor_lite | 表示编译 norflash 启动的 uboot, 针对 T30L 芯片 | | | |
| T30X | make isvp_t30_sfcnor_ddr128M | 表示编译 norflash 启动的 uboot, 针对 T30X 芯片 | | | |
| T30A | make isvp_t30a1_sfcnor_ddr128M | 表示编译 norflash 启动的 uboot, 针对 T30A 芯片 | | | |
| T30N | make isvp_t30_msc0 | 表示编译 SD 卡启动的 uboot,针针对 T30N 芯片 | | | |
| T30L | make isvp_t30_msc0_lite | 表示编译 SD 卡启动的 uboot, 针针对 T30L 芯片 | | | |
| T30X | make isvp_t30_msc0_ddr128M | 表示编译 SD 卡启动的 uboot, 针针对 T30X 芯片 | | | |
| T30A | make isvp_t30a1_msc0_ddr128M | 表示编译 SD 卡启动的 uboot. 针针对 T30A 芯片 | | | |

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Step 2: \$ make isvp_t30_xxx compiles the corresponding uboot according to the corresponding chip, and \$\epsilon\$ the corresponding u boot-with-spl.bin

- Common modifications in the Uboot configuration file:
- 1) CONFIG_BOOTARGS, the main modification point is the memory after the kernel is started Configuratio size configuration. (Note: mem means the memory reserved after the kernel is started, rmem means the m reserved for the SDK (including the memory of the ISP module); the sum of the two is the real memory siz chip; the specific size can refer to the code).
- 2) CONFIG_BOOTCOMMAND, configure the command executed by uboot. For example: add the command the SD card in norflash boot mode, "sf probe;sf read 0x80600000 0x40000 0x280000; bootm 0x80600000" "mmc read 0x80600000 0x1800 0x3000; bootm 0x80600000".
- 3) CONFIG BOOTDELAY, configure the waiting time of uboot.
- 4) Need to add new norflash chip support.
- 5) Add password function in uboot:

Modify the configuration file and add the following content in

isvp t30.h: #define CONFIG AUTOBOOT KEYED // Mandatory

#define CONFIG AUTOBOOT STOP STR "123456" // Mandatory, the password set by uboot.

#define CONFIG_AUTOBOOT_PromPT "Press xxx in %d second", bootdelay //Optional, uboot pro #define CONFIG_AUTOBOOT_DELAY_STR "linux" //Optional,

the specific implementation of uboot prompt information code is abortboot_keyed(int bootdelay) common/main.c; you can change it according to your needs.

6) SD card upgrade problem

Add #define CONFIG_AUTO_UPDATE definition in isvp_t30.h. The specific code is implemented in common/cmd_sdupdate.c. Points to note: LOAD_ADDR means to

load the corresponding memory on the SD card to the memory location. The default setting in the 0x82000000. Since this address is located on the heap of uboot, the heap size of common uboot is set in t configuration of the CONFIG SYS MALLOC LEN macro in isvp t30.h; so

the size that this address can be used will be limited by the heap size, and The limitation of malloc space in code. (Note: When you need to read larger files, you can increase CONFIG_SYS_MALLOC_LEN appropriately

- 7) The size of the compiled uboot is larger than the limit
- . The default limit of the uboot code is 26Kbytes for the spl part and 214Kbytes for the uboot part; a total 240Kbytes is limited. If the u-boot-with-spl.bin file generated by uboot is larger than 240Kbytes, it cannot Solution 1:

Increase the limit of uboot; modify the definition of the CONFIG_SYS_MONITOR_LEN macro in isvp_t30.h; r size of the boot partition in the CONFIG_BOOTARGS variable and the offset address of the subsequent par the same time.

Solution 2:

If the generated u-boot-with-spl.bin exceeds 240Kbytes and less, you can compress uboot. Modify #under CONFIG_SPL_LZOP in isvp_t30.h to #define CONFIG_SPL_LZOP; then recompile and burn the file name u-boot-lzo-with-spl.bin

8) uboot network problem The

default isvp configuration includes the code of the Ethernet part. If the product does not require TFTP dov NFS mount during the uboot stage, the Ethernet part of the code can be cut out to reduce uboot.

Specific operation: Open the isvp T30.h configuration file and annotate the #define CONFIG CMD NET materials.

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