

i.MX28L Development System



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Technology

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Visit below website for the updated information:

---- i.MX28L: the Linux OS development platform Based on i.MX28:

http://www.yuan-ying.com/product_catalog/i.mx28l.html

---- i.MX28W: the WinCE6.0 Development platform based on i.MX28:

http://www.yuan-ying.com/product_catalog/i.mx28w.html



Starting from Oct,2009 , Yuanying Tech has invested a lot of resource in the system design with Freescale ARM series product, up to date we have launched the series development platform based on i.MX25、 i.MX35、 i.MX51, help many our customers largely shorten the time to market about their product and create the success one and another. Now we are proud to announce we have finished i.MX28 Linux development platform: i.MX28L。

i.MX28 is ARM926EJ-S core, 454MHz, own 16KB I-Cache and 32KB D-cache, also 128KB SRAM and 128KB ROM integrated as well. Meanwhile, which include LCD controller, 12-bit 8 channels ADC, two I2C interfaces, and six UART ports, two Ethernet interface, two CAN interface, four SD/MMC interface. Four timers and six channel PWM output, USB HOST, USB DEVICE various connection interface. About system RAM, adopt DDR2 interface, it's newest supporting among current all ARM9 product。

i.MX28L is the system platform based on Linux 2.6.31 kernel, treat ext2 as system file, own i.mx287+128MB DDR2 system hardware, be able to boot up form SD card or NAND Flash, also i.MX28W including 7" LCD and resistance touch panel. Which built in i.MX28 all



input/output resource. Continue to use Yuanying design style (CPU core board + bottom board), the components of CPU core board meet the industrial level, be able to work at the temperature range of -40C to +85C, and storage temperature from -55C to +125 degree. i.MX28W can widely applied for consumer electronics field, outdoor multimedia, industrial control and HMI, medical equipment and so on .Which is the good selection to power meter terminal, HMI of industry equipment, automotive ECU, medical device display interface。

Offer CPU Core Board selling and open bottom system board design to speed up customer end product design cycle. And, commit to deliver the best cost effective performance than the similar ARM9 system in mass market.

◆ Hardware Feature

CPU

- ※ i.MX287
- ※ ARM926EJ-S 454MHz
- ※ 16K I-Cache
- ※ 32K D-Cache
- ※ LCD controller integrated
- ※ 2 X CAN controller
- ※ 2 X Ethernet with IEEE1588

Memory

- ※ Memory: Chip Internal integrate 128MB RAM + 128K ROM, System support DDR2 128MB
- ※ Serial Flash: 1MB(Optional)
- ※ NAND: 1GB(alternative with SD card)
- ※ I2C EEPROM: 256K(option)

Connection Interface

- ※ USB port: HS USB OTG, HS USB Host
- ※ SD: two SD card socket (one of it as system Boot up)
- ※ FEC: 10/100M Ethernet, 2 X IEEE1588
- ※ UART: 6 X UART port with MX287
- ※ CAN: 2 X CAN controller
- ※ TOUCH: 7" resistance touch panel

A-V output

- ※ LCD: 7" TFT LCD, 800x480 resolution
- ※ Audio IN: MIC
- ※ Audio out: Headphones
- ※ SPDIF output: option

Clock and Power Supply



※ Power: 5V 2A DC power supply

Wireless communication

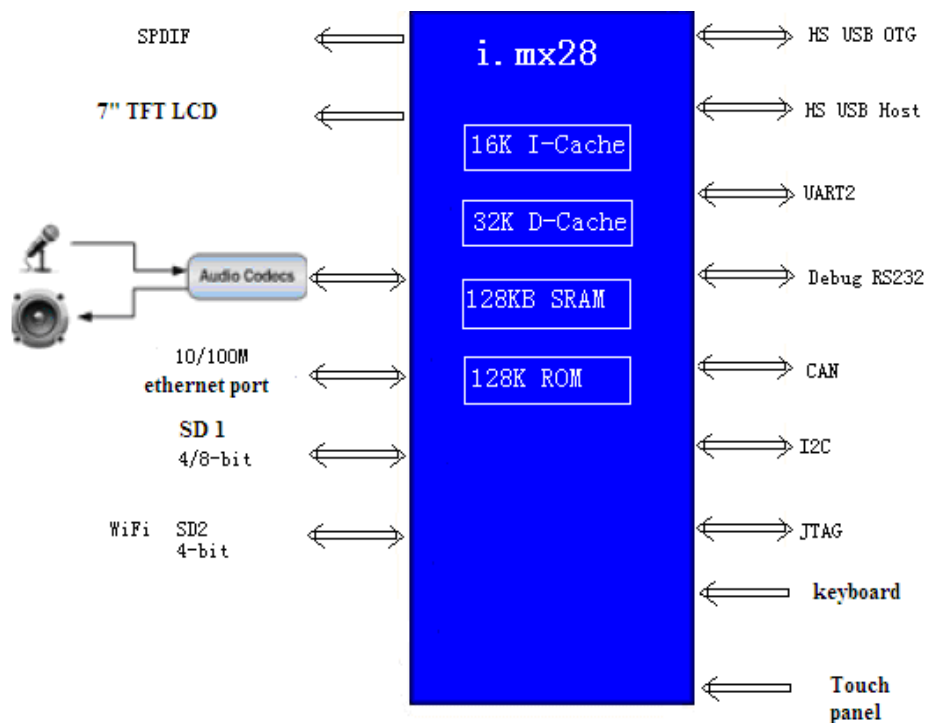
※ WiFi: WiFi 802.11g/b (option)

Dimension

※ Bottom board: 9.5cm X 9.5cm 2 layers PCB

※ CPU Core board: 4.0cm X 5.3cm 6 layers PCB

Block Diagram

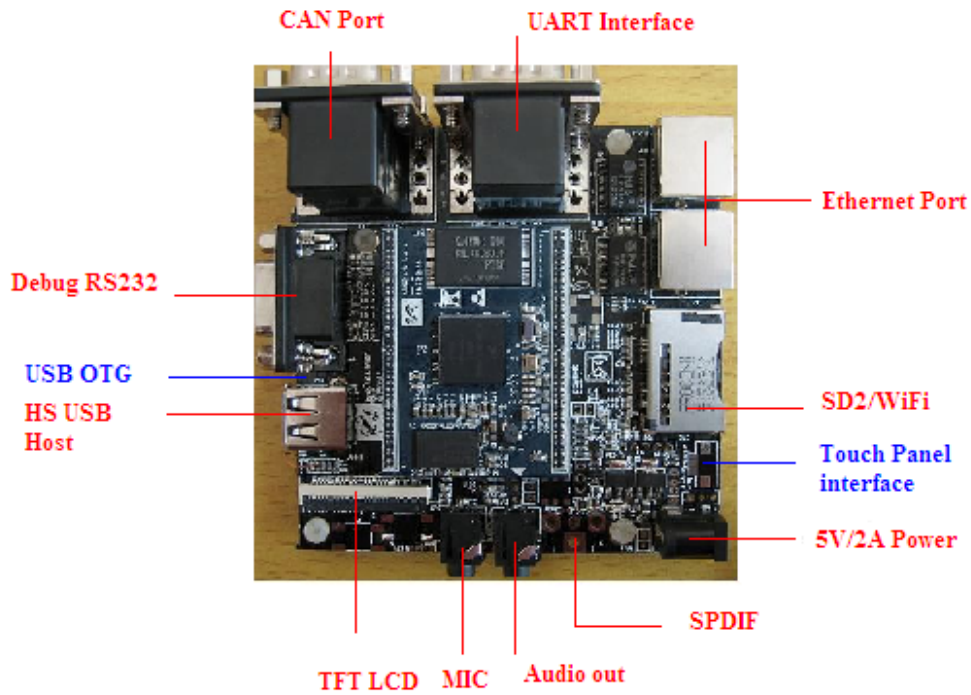


Note:

- 7" TFT LCD
- WiFi function is optional part
- Touch panel is resistance touch panel
- SD2 and i-NAND is alternative



◆ Board Connection





■ **BOOT mode setting:**

Table 40-3. Boot Mode Selection Map

ETM Enable/ LCD_ DATA[5] 	VOLTAGE SELECTOR/ LCD_ DATA[4] 	BM3/ LCD_ DATA[3] 	BM2/ LCD_ DATA[2] 	BM1/ LCD_ DATA[1] 	BM0/ LCD_ DATA[0] 	PORT	BOOT MODE
x	x	0	0	0	0	USB0	USB (unencrypted vs. encrypted is under OTP control)
x	0	0	0	0	1	I2C0	I2C0 master, 3.3 V
x	1	0	0	0	1	I2C0	I2C0 master, 1.8 V
x	0	0	0	1	0	SPI2	SPI master SSP2 boot from flash, 3.3 V
x	1	0	0	1	0	SPI2	SPI master SSP2 boot from flash, 1.8 V
x	0	0	0	1	1	SPI3	SPI master SSP3 boot from flash, 3.3 V
x	1	0	0	1	1	SPI3	SPI master SSP3 boot from flash, 1.8 V
x	0	0	1	0	0	GPML	NAND, 3.3 V
x	1	0	1	0	0	GPML	NAND, 1.8 V
x	0	0	1	0	1		Reserved
x	0	0	1	1	0		Reserved
x	0	0	1	1	1		Reserved
x	0	1	0	0	0	SPI3	SPI master SSP2 boot from EEPROM, 3.3 V
x	1	1	0	0	0	SPI3	SPI master SSP2 boot from EEPROM, 1.8 V
x	0	1	0	0	1	SSP0	SD/MMC master on SSP0, 3.3 V
x	1	1	0	0	1	SSP0	SD/MMC master on SSP0, 1.8 V
x	0	1	0	1	0	SSP1	SD/MMC master on SSP1, 3.3 V
x	1	1	0	1	0	SSP1	SD/MMC master on SSP1, 1.8 V
x	0	1	0	1	1		Reserved
x	0	1	1	0	0		Reserved
x	0	1	1	0	1		Reserved
x	0	1	1	1	0		Reserved
x	0	1	1	1	1		Manufacturing Test Mode

◆ Linux BSP

Bootloader

Redboot	Support SD card update new kernel and file system, end user can download kernel and file system by ethernet
U-boot	Support SD card update kernel and file system, also user can download kernel and file system by ethernet

Operation System:

Linux 2.6.31 kernel

Bottom layer Driver:

FEC Driver	Ethernet driver
USB OTG Driver	USB OTG driver
USB Host Driver	USB Host driver
UART Driver	Serial port driver
Audio Driver	Audio codec driver
TOUCH Driver	Resistance touch panel driver



SPDIF Driver	SPDIF driver
Flex CAN Driver	CAN driver
Camera Driver	Camera driver
MMC/SD/SDIO Driver	MMC/SD/SDIO driver
SPI Driver	SPI ROM driver
L2 Switch driver	L2 switch driver
I2C Driver	I2C communication driver
1-Wire	1-Wire driver
IEEE1588 Driver	IEEE1588 stack driver
RTC Driver	RTC driver program
WDOG Driver	Watch dog driver
PWM Driver	PWM output driver

Multimedia Supporting:

Video decoding	<ul style="list-style-type: none"> ● MPEG4 decode: 320x240p,30fps ● H.264 decode: 320x240,30fps
Audio decoding	<ul style="list-style-type: none"> ● AAC MPEG-2 and MPEG-4 audio low complexity ● AAC PLUS MPEG-2 and MPEG-4 audio low complexity ● MP3 MPEG-1 Audio Layer I II III ● WMA Standard WMA V10 Standard L1/L2/L3 profile ● WMA Professional WMA V10 Professional M0a/b profile
Supported file format	MP3,wma,aac,m4a,m4b,mp4,mov,3gp,m4v,avi

※ **i.MX28 Linux DVP platform configuration**

- ① i.MX28 Linux DVP board, 1 piece
- ② 7" LCD + resistance touch panel
- ③ 4G SD card, 1 piece or NAND Flash on board
- ④ RS232 cable, 1
- ⑤ USB data cable, 1
- ⑥ 5V 2A power supply
- ⑦ CD, 1 pcs
- ⑧ Linux Kernel Development introduction, 1 piece

※ **i.MX28 Linux contents on CD disc**

- ① i.MX28 user manual, 1
- ② the schematic diagram of bottom board, 1
- ③ Linux DVP hardware manual, 1
- ④ Linux BSP user manual, 1
- ⑤ i.MX28 Linux board quick start, 1