

i.MX28W Development System





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 WinCE development platform: i.MX28W。

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.MX28W based on Windows CE 6.0 OS, 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 offer 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

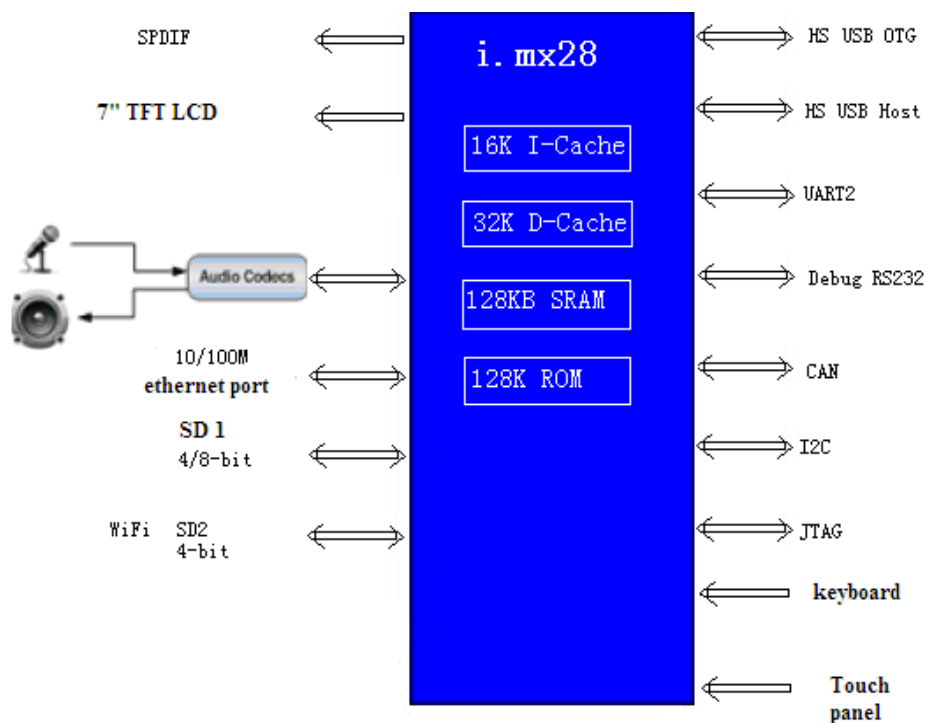
※ WiFi: WiFi 802.11g/b (option)

Dimension

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

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

Block Diagram

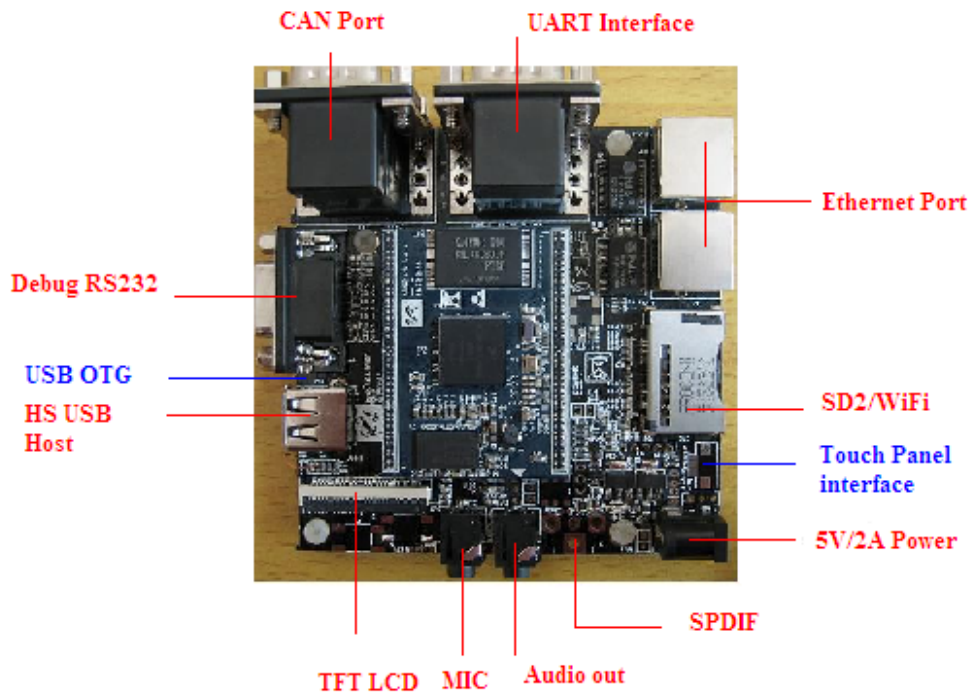


Note:

- 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 | GPMI | NAND, 3.3 V |
| x | 1 | 0 | 1 | 0 | 0 | GPMI | 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 |

◆ WinCE BSP

Operation System:

Windows CE 6.0

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 WinCE DVP platform configuration**

- ① i.MX28 WinCE, 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 WinCE Development introduction, 1 piece

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

- ① i.MX28 user manual, 1
- ② the schematic diagram of bottom board, 1
- ③ WinCE DVP hardware manual, 1
- ④ Windows BSP user manual, 1
- ⑤ i.MX28 Windows CE 6.0 quick start, 1