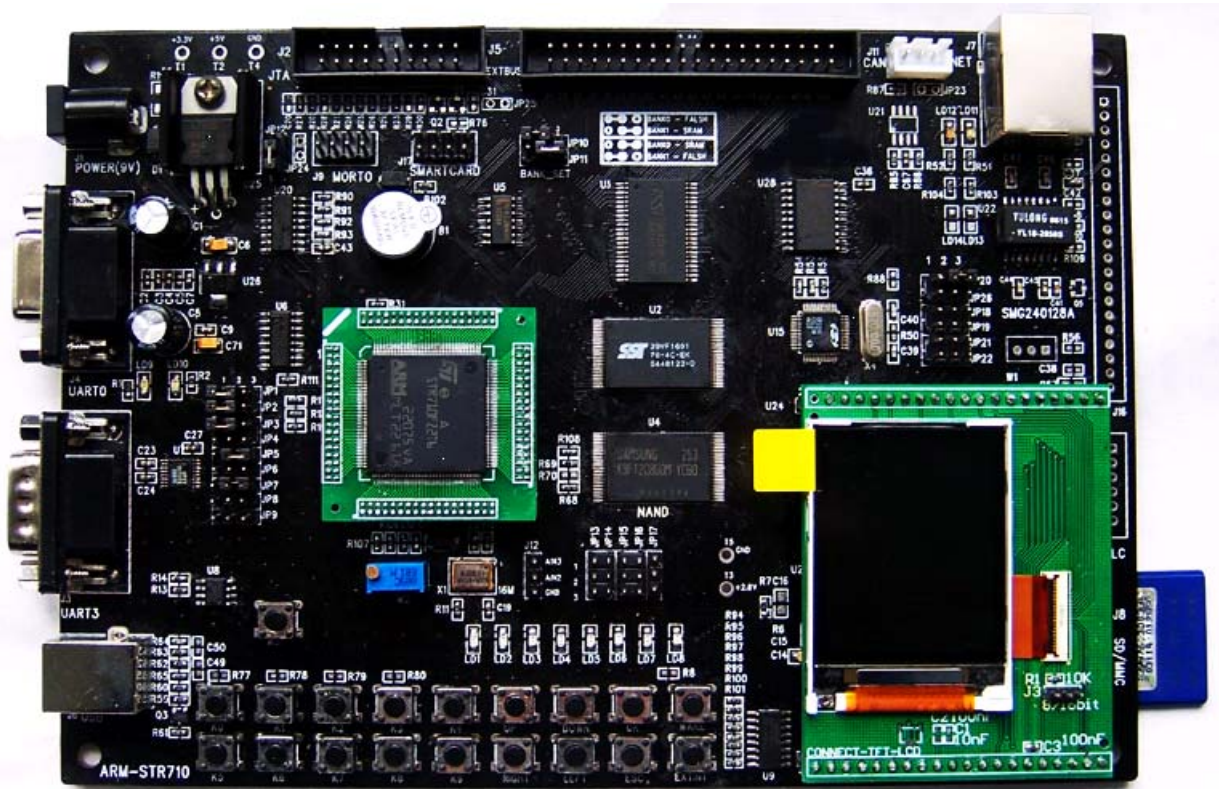


## Embest STDV710C Evaluation Board

- A High-performance Evaluation Board for ST Microelectronic STR710 Microcontroller
- RS232, USB device, Ethernet, CAN, LCD, SD/MMC, HDLC, 4x4 Keyboard, IIC, SPI...
- Plenty of Software Examples, all in source code



Embest STDV710C Evaluation Board

### Description

The STR710F-Z2T6 is a highly integrated microcontroller, running at 48 MHz that combines the popular ARM7TDMI 32-bit RISC CPU with 256 Kbytes of embedded flash, 64 Kbytes of high speed SRAM, and numerous on-chip peripherals. The device is in feature-rich TQFP144 package and has the full set of all features including CAN, USB, SPI, I2C, UART, External Memory Interface and etc. It is designed to target industrial control applications such as factory automation, point-of-sale and vending machines, and testing equipment, as well as mass-market telecom applications such as bridges and protocol translators.

The STDV710C Evaluation Board is a complete development platform, which enables engineers to easily and rapidly evaluate, prototype and test designs built around the STMicroelectronics STR710F series microcontrollers. The board is fitted with the STR710F-Z2T6 microcontroller and includes 512KBytes SRAM and 2MBytes flash memory on the EMI. It takes full features of the ST microcontroller and integrates CAN, USB, SPI, I2C, UART, ADC, Watchdog and more functions on board. Additionally, it enhances its performance greatly by increasing a 64Mbyte Nand Flash, 10M Ethernet interface, two LCD interfaces, a 4\*4 Keyboard, a SD/MMC card socket implemented by Buffered Serial Peripheral Interface, a HDLC interface and a Smart Card interface.

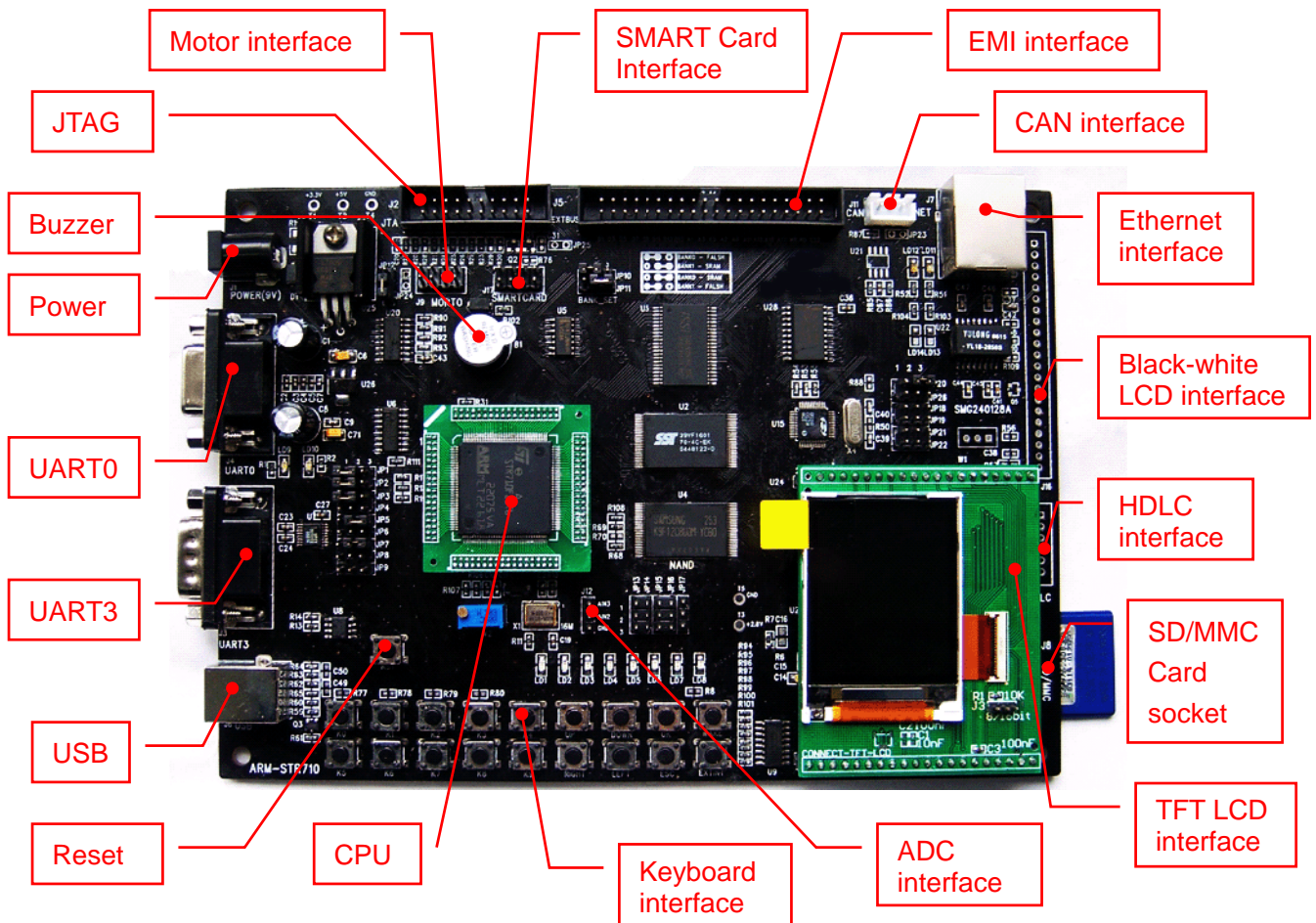
Embest offers plenty of software examples with this board, all of which are in source code and can be used in most popular ARM ADS1.2 and Keil MDK development environment.

Users can fully take use of the board to meet your development requirements and applications. The board has rich peripherals and comprehensive functions and is also well suited to be an excellent starter kit for teaching and learning to university teachers and ARM learners.

## Hardware Specification

- Dimensions: 188mm x 132mm, -40~+85℃
- Processor: STR710F-Z2T6 with on-chip 272KB (256K+16K) FLASH and 64KB SRAM
- Power input: +9V
- EMI: 512KB SRAM, 2MB Nor Flash
- 64MB Nand Flash
- 10M Ethernet interface (CP2200)
- USB2.0 full speed (12Mbs) interface (Device)
- CAN2.0 interface
- 2 RS232 serial ports
- SPI Interface
- SD/MMC card socket
- 320 x 240 black-white graphic LCD interface
- 160 x 128 TFT LCD interface
- 4-ch, 12-bit ADC and 1 on-board regulator
- 1 buzzer
- 1 Reset button
- 1 WAKE-UP button
- 4\*4 keyboard
- SMARTCARD interface
- HDLC interface
- A standard 20-pin Debug-JTAG connector

## Interfaces and Jumpers Introduction



### Interfaces: List below the introduction of the main interfaces

Interface	Name	Number of Pin	Description
J1	DC9V	-	Power DC9V
J2	JTAG	20	JTAG interface
J3	UART3	-	Serial port 3 (DB9 - male)
J4	UART0	-	Serial port 0 (DB9 – female)
J5	EMI	40	External Memory Interface
J6	USB Device	-	USB Device (type B)
J7	RJ45	-	10M Ethernet interface
J8	SD/MMC	-	SD/MMC socket
J9	Motor	6	Stepping motor CON_MV
J10	HDLC	6	HDLC interface
J11	CAN	3	CAN interface
J12	ADC	3	ADC interface
J16	Black-white LCD	-	Black-white LCD interface
J17	Smart Card	-	Smart Card interface

**Jumpers: List below the functions and settings of the main interfaces**

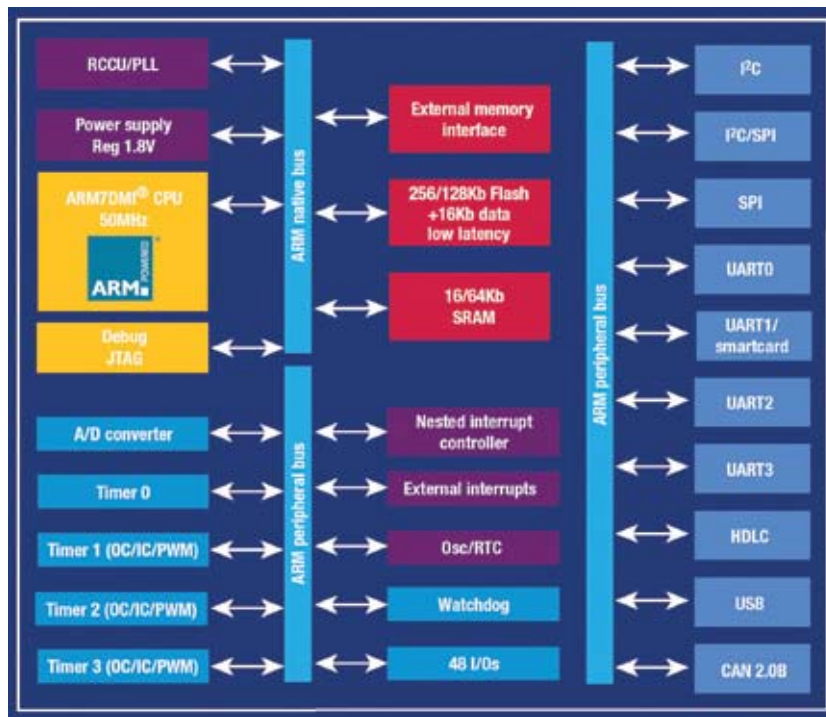
Jumper	Description	Setting	Setting explanation
JP1	BOOT EN	Please refer to <a href="#">BOOT MODE SETTING</a>	
JP2	BOOT0		
JP3	BOOT1		
JP4	P0.10	1-2	Smart Card - Data line (SC_I0)
		2-3	Stepping Motor - Control line 3
JP5	P0.11	1-2	Smart Card – Reset (SC_RST)
		2-3	Boot.1 (Default)
JP6	P0.12	1-2	Smart Card – Clock (SC_CLK)
		2-3	Stepping Motor – Control line 2
JP7	P0.9	1-2	UART0 – Receive (Tx_B)
		2-3	Boot.0 (Default)
JP8	P0.8	1-2	UART0 – Transmit (Rx_B)
		2-3	USB or SD/MMC plug-in detect
JP9	P2.11	1-2	Nand Flash – Ready/Busy status (/RB)
		2-3	Button – Interrupt (K_INT)
JP10	Nor Flash_CS select	1-2	Chip Select 0 (/CS0)
		2-3	Chip Select 1 (/CS1)
JP11	SRAM_CS selection	1-2	Chip Select 0 (/CS0)
		2-3	Chip Select 1 (/CS1)
JP12	P0.13	1-2	Stepping Motor – Control line 0
		2-3	Buzzer (BUZZER_EN)
JP13	P2.8	1-2	Ethernet (CP2200) – Interrupt (INT_RTL)
		2-3	SD/MMC – Write Protect (SD_WP)
JP14	P1.2	1-2	A/D Converter – Line 2 (AIN2)
		2-3	Black & White LCD – Reset (LCD_RST)
JP15	P1.3	1-2	A/D Converter – Line 3 (AIN3)
		2-3	SD/MMC – Interrupt (MMC_INT)
JP16	74HC595 power control	1-2	74HC595 – Power On
		2-3	74HC595 – Power Off
JP17	Multi-media Board CLK selection	1-2	External 16M Crystal
		2-3	Process
JP18	P1.13	1-2	HDLC – Clock (HCLK)
		2-3	Ethernet (CP2200) – Reset (NET_RST)
JP19	P1.14	1-2	HDLC – Receive (HRXD)
		2-3	Media Chip (V938) – Reset (V938_RST)
JP20	P1.15	1-2	HDLC – Transmit (HTXD)
		2-3	Media Chip (V568) – Reset (V568_RST)

JP21	P1.12	1-2	CAN – Transmit (CANTX)
		2-3	LED (LD13)
JP22	P1.11	1-2	CAN – Transmit (CANTX)
		2-3	LED (LD14)
JP23	CAN bus matching	0	Not Matching
		1	Matching with 120Ω resistor
JP24	Stepping Motor power control	0	Power ON
		1	Power OFF
JP25	JTAG reset select	0	CPU – Reset / JTRST (Default)
		1	Main board – Reset / RST_STR710F
JP26	CAN mode selection	1-2	High-speed mode
		2-3	Low-speed mode

### BOOT MODE SETTING

BOOT EN	BOOT1 (B1)	BOOT0 (B0)	Mode	Boot memory mapping	Explanation
0	x	x	user	On-chip Flash mapping to add0	System boot from on-chip flash
1	0	0			
1	0	1	System memory	System memory mapping to add0	System boot from pre-loaded booting program; Clock being frozen
1	1	0	RAM	On-chip RAM mapping to add0	System boot from on-chip SRAM; Used in lab development
1	1	1	External memory	External memory mapping to add0	System boot from external memory (viz. external Flash of the board)

### STR710F Series Microcontroller Function Block Diagram



### STR710F Series Device Summary

Feature	Flash Kbytes	RAM Kbytes	Peripheral Function	Package	Operating Voltage	Operating Temp.
STR710FZ1	128+16	32	CAN, EMI, USB 48I/Os, 4UART	T=TQFP144 20x20 / H=FBGA144 10x10	3.0 to 3.6V (optional 1.8V for core)	Minus 40 to plus 85°C
STR710FZ2	256+16	64				
STR711FR0	64+16	16	USB, 30I/Os, 4UART	T=TQFP64 10x10 / H=LFBGA64 8x891.7		
STR711FR1	128+16	32				
STR711FR2	256+16	64				
STR712FR0	64+16	16	CAN, 32I/Os, 4UART			
STR712FR1	128+16	32				
STR712FR2	256+16	64				
STR715FR0	64+16	16	32I/Os, 4UART			

## Software Examples

Embest Provides plenty of software examples for this STDV710C evaluation board, all in source code. These software examples can be debugged under the popular Keil MDK environments. The structure of the directories is as below:

Directory	Content
MDK	All source codes under MDK environment
BASIC Examples	
-- minsys	Verify the experiment environment and the board.
-- uart	UART test program
-- kpd	Keyboard test program
-- I2C_eeprom	EEPROM (Read - Write) test program
-- timer	Timer test program
-- xti	External interrupt test program
-- watchdog	Watchdog test program
-- pwm	PWM test program
-- adc	ADC test program
-- wake_up	Low power wakeup test program
-- spi_led	LEDs (Buffered SPI) test program
-- usb	USB test program
-- ext_flash	External Nor Flash (Read-write) test program
-- nand	Nand Flash test program
-- rtc	Real-time Clock test program
-- sd_mmc	SD/MMC card (Read-write) test program
-- net_cp2200	Ethernet Controller (CP2200) test program
-- clkcfg	System Clock (MHz) Configure test program
-- CAN	CAN test program
--TFT LCD Examples	TFT LCD test program

## Order Information

Order No.	EB710C
Item	Embest STDV710C Evaluation Board
CD-ROM	<ul style="list-style-type: none"> <li>● Software examples</li> <li>● User manual</li> <li>● Circuit schematic drawing</li> <li>● Datasheet</li> <li>● STR7xx Documents for development</li> </ul>
Others	<ul style="list-style-type: none"> <li>● 1 Serial cable</li> <li>● DC9V Power Adapter</li> <li>● 1 USB cable</li> <li>● 1 Ethernet cable</li> </ul>
Option Hardware	160 x 128 TFT LCD



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