ELEC 3300 Introduction to Embedded System

EK–STM3210E Emulator

EK–STM3210E is developed by Manley Electronics (www.manley.com.cn) for Cortex-M3 Series MCU design. The EK–STM3210E Emulator is using STM32F103ZET6 from ST Microelectronics as the core.

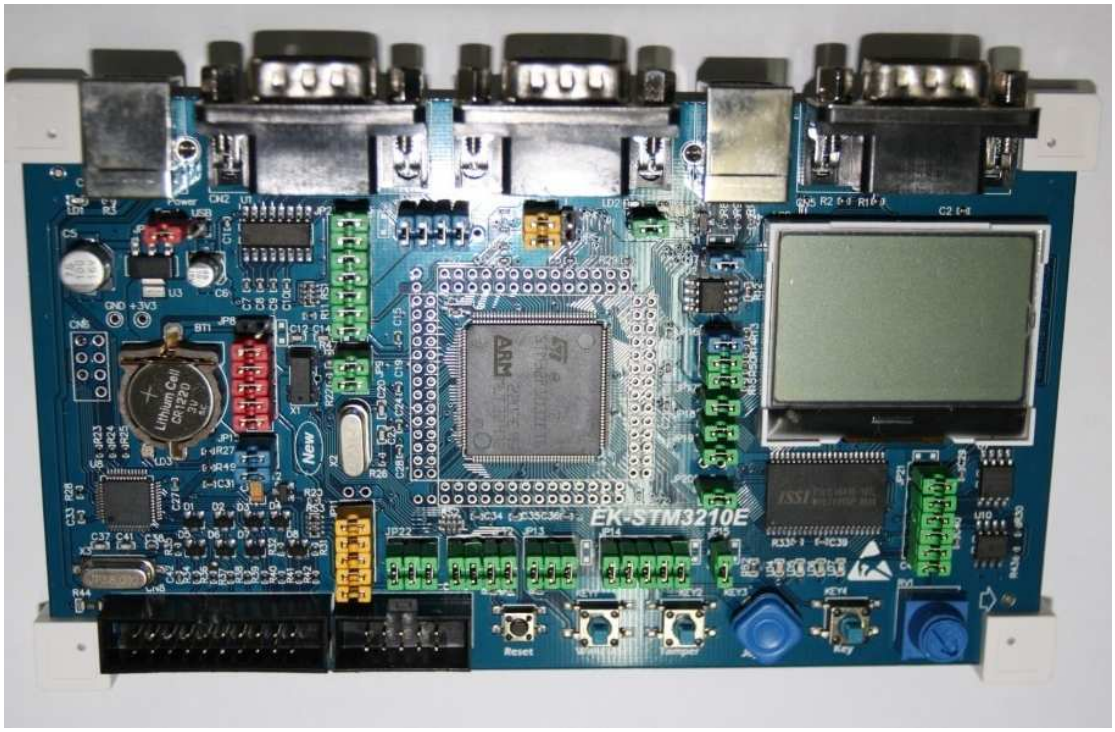

Figure 1: EK–STM3210E Emulator

Features

Build-in ST–LINK II emulator, support STM32F10x standard or extended Cortex-M3 MCU.

USB 2.0 Full Speed. USB Powered.

STM32F103ZET6 ST Cortex-M3

One connectable SRAM (128KB)

One connectable NOR Flash (512KB)

One connectable NAND Flash (128MB)

One M25PE80 SPI Flash (1MB)

Two RS232 Connectors (DB9). Connectable thru jumpers to 2 UART

One B-type USB socket, Connectable thru jumpers

One CAN Connector (DB9), Connectable thru jumpers

One SD card socket (Standard SDIO), Connectable thru jumpers

Main oscillator 8MHz/ User changeable to (4~16MHz) or 32KHz oscillator

One 128×64 dot matrix LCD. Connectable thru jumpers

One I2C, Connectable thru jumpers to 24C02

Four LEDs

One Potentiometer to emulate analogue input

One joystick with 5 directions input

Three GPIO keys

One reset key.

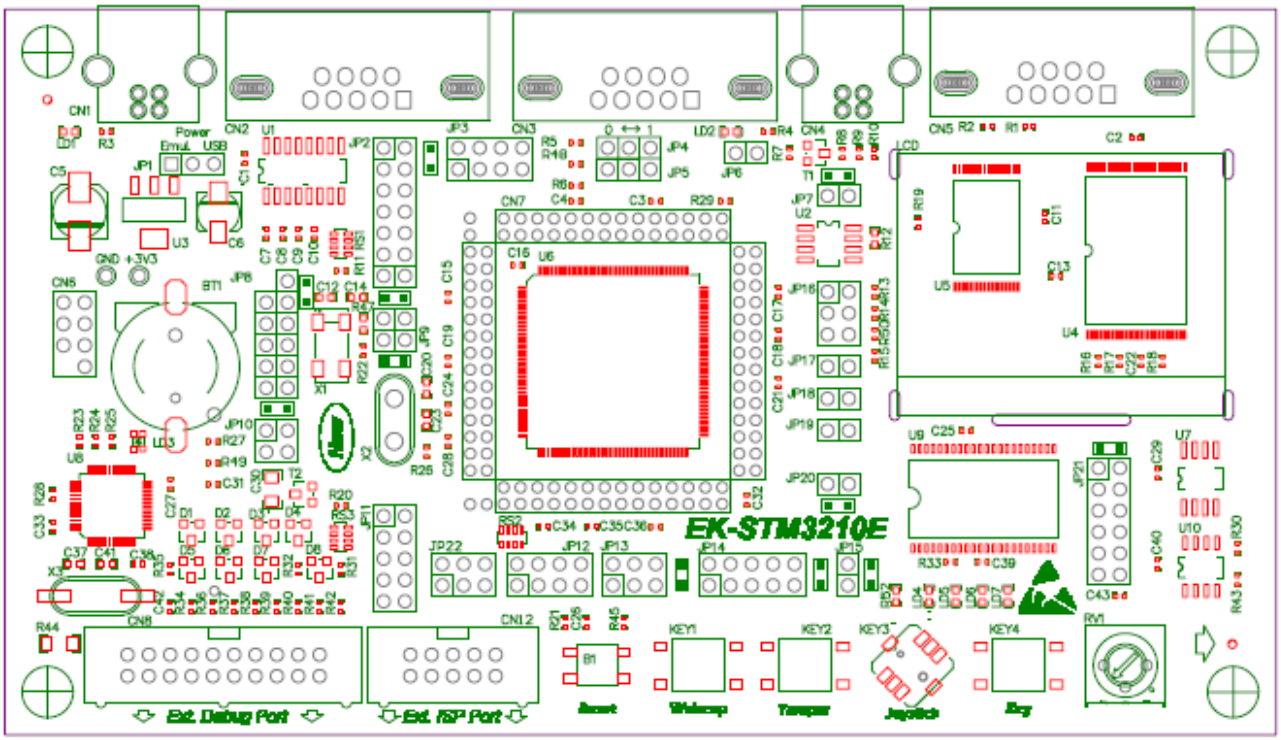

Figure 2 : Component Side Layout

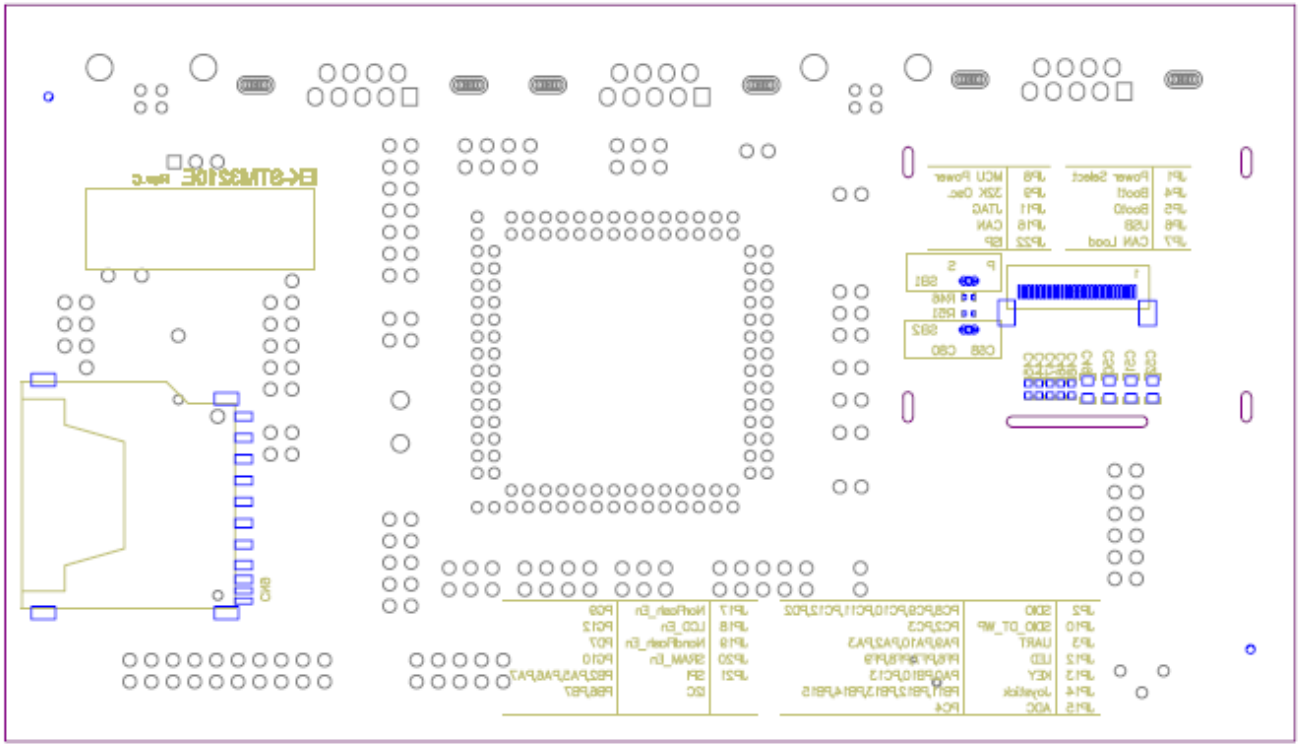

Figure 3 : Solder Side Layout

Connectors

Connector	PCB	Description
CN1	ST−LINKII	Emulator USB connector
CN2	UART−1	RS−232 socket 1, thru JP3 connect to UART1
CN3	UART−2	RS−232 socket 2, thru JP3 connect to UART2
CN4	USB	STM32 USB connector, thru JP6 to power system
CN5	CAN	CAN connector, thru JP7 connect to CAN
CN6	JTAG	ST−LINK II JTAG connector, system reserved, not available to user
CN7	MCU I/O	MCU GPIO extension
CN8	EXT. JTAG	Emulator JTAG connector. Must disconnect JP11 in order to use.
CN9	SD CARD	SD connector. Connect to SD socket thru JP2

Table 1 : Connectors Descriptions

Jumpers

Jumper	PCB	Function	CPU	Description
JP1	STLINKII/USB	STLINKII/USB		STLINKII/USB PWR Selection
JP2	SDIO	MSD_D1	PC9	SD Card Signal 1
		MSD_D0	PC8	SD Card Signal 0
		MSD_CLK	PC12	SD Card Clock
		MSD_CMD	PD2	SD Card Command
		MSD_D3	PC11	SD Card Signal 3
		MSD_D2	PC10	SD Card Signal 2
		MSD_PWR	PB5	SD Power Control
JP3	USART	USART1_TX	PA9	USART1 Tx
		USART1_RX	PA10	USART1 Rx
		USART2_TX	PA2	USART2 Tx
		USART2_RX	PA3	USART2 Rx
JP4	Boot1	Boot1		Boot1 Selection
JP5	Boot0	Boot0		Boot0 Selection
JP6	USB			USB Connector Select
JP7	CAN_load			CAN Loading
JP8				STM32F103ZET6 Power
JP9	32KHz_OSC			32KHz Oscillator
JP10	SDIO_DT_WP	MSD_DET	PC2	MSD DET
		MSD_WP	PC3	MSD WP
JP11	JTAG	nRST	RESET	Reset
		JTDO	PB3	Digital Output
		JTCK	PA14	Clock
		JTMS	PA13	Mode Selection
		JTDI	PA15	Digital Input
		NJTRST	PB4	Testing Reset

JP12	LED	LED4	PF6	LED4
		LED5	PF7	LED5
		LED6	PF8	LED6
		LED7	PF9	LED7
JP13	KEY	User_Button	PB10	KEY4
		Anti_Tamper	PC13	KEY2
		Wakeup	PA0	KEY1
JP14	JOYSTICK	JOY_DOWN	PB15	DOWN KEY
		JOY_UP	PB14	UP KEY
		JOY_LEFT	PB13	LEFT KEY
		JOY_RIGHT	PB12	RIGHT KEY
		JOY_SEL	PB11	SELECTION KEY
JP15	ADC	RV1	PB4	ADC Input
JP16	CAN	CAN_TX	PB9	CAN Tx
		CAN_RX	PB8	CAN Rx
JP17	NandFlash_EN		PG9	Nand Flash Enable
JP18	LCD_EN		PG12	LCD Enable
JP19	NandFlash_EN		PD7	Nand Flash Enable
JP20	SRAM_EN		PG10	SRAM Enable
JP21	I2C, SPI	I2C_SCK	PB6	I2C SCK
		I2C_SDA	PB7	I2C SDA
		SPI_CS	PB2	SPI Chip Select
		SPI_MISO	PA6	SPI Data In
		SPI_SCK	PA5	SPI Clock
		SPI_MOSI	PA7	SPI Data Out
JP22	ISP	RESET	nRST	MCU Reset Input
		UART1_TX	PA9	ISP Programmer Input
		UART1_RX	PA10	ISP Programmer Output

Table 2 : Jumpers Descriptions

Jumper (Solder Bridge)

Jumper	PCB	Description
SB1	P/S Select	LCD Parallel/Serial Mode Select (Default : Parallel)
SB2	C86 Select	LCD Mode Select (Default : C80 Mode)

Data in this document is referenced and modified from EK–STM3210E ST CortexM3 Emulator User Manual v1.11 from Manley Electronics.