Quick Start Guide

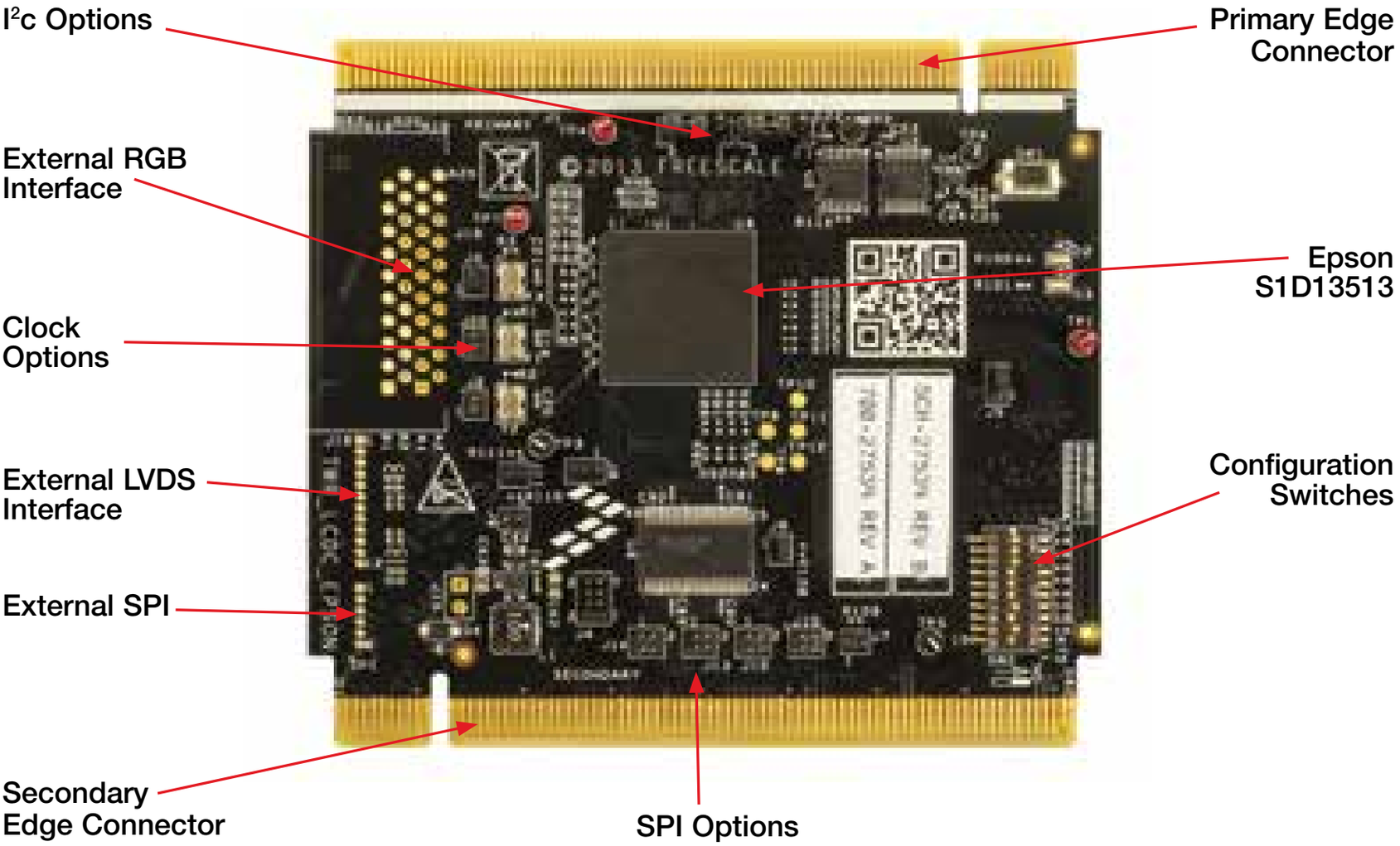
TWR-LCDC-EPSON

Epson Display Controller Module

freescale™

TOWER SYSTEM

Get to Know the TWR-LCDC-EPSON



TWR-LCDC-EPSON Freescale Tower System

The TWR-LCDC-EPSON module is part of the Freescale Tower System portfolio, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Elevate your design to the next level with this industrial power house by building your Tower System today.

TWR-LCDC-EPSON Features

- Features the Epson S1D13513 display controller
- Onboard SDRAM
- Interfaces with a Tower System controller module via the parallel external memory interface (EBI)
- Interfaces directly with the TWR-LCD-RGB
- Optional interfaces for externally connected RGB or LVDS display panels
- Selectable SPI and I^2C pass-through interfaces for LCD/touch configurations

Step-by-Step Installation Instructions

1 Assemble the Tower System

The default example application assumes the following Tower assembly: TWR-ELEV + TWR-K60D100M + TWR-LCD-RGB + TWR-LCDC-EPSON

Ensure that the Tower System modules are properly aligned to the primary and secondary edges, with the TWR-LCD-RGB attached to the secondary side.

2 Program the Tower System Controller

Using an IDE compatible with the TWR-K60D100M, such as CodeWarrior, follow the respective flashing instruction included with the default example application.

3 Interact with the Graphical User Interface

The default example application features a simple GUI developed using PEG and featuring the CRTouch to provide touch inputs.

4 Learn More

Refer to **freescale.com/TWR-LCDC-EPSON** for additional information, including a request link for a PEG evaluation based on the TWR-LCDC-EPSON pre-compiled PEG library.

TWR-LCDC-EPSON Jumper Settings

Jumper	Option	Setting	Description
J2	27 MHz OSC Disable	1-2	Disables the onboard 27 MHz oscillator connected to S1D13513 OSCI2
J3	10 MHz OSC Disable	1-2	Disables the onboard 10 MHz oscillator connected to S1D13513 CLKI3
J4	External LED Back Light Configuration	**1-2**	Disables external LED Backlight (signals routed to J15 for off-board use)
		3-4	3-4 short, 5-6 open, 7-8 open: 20 mA load
		5-6	3-4 short, 5-6 short, 7-8 open: 40 mA load
		7-8	3-4 short, 5-6 short, 7-8 short: 60 mA load
J5	SDRAM Width Select	1-2	x32 SDRAM (32 MB)
		2-3	X64 SDRAM (64 MB)
J6	Enable RGB Interface	**1-2**	Enables the RGB interface to the Tower System elevator, additionally signals are routed to J19 for off-board use
J7	LCD Enable Signal (TWR-LCD-RGB)	1-2	LCD enable signal for the TWR-LCD-RGB. J7 is actively pulled high, shunting connects the LCD enable to GND

TWR-LCDC-EPSON Jumper Settings

Continued

Jumper	Option	Setting	Description
J8	SPI CS Inverter Enable	1-2	Inverts the S1D13513 GPIO0 signal (refer to the S1D1513 for usage details)
		2-3	Direct connection of the S1D13513 GPIO0 signal
J9	External LVDS Data Strobe Polarity	1-2	Unshunted: Rising edge data strobe Shunted: Falling edge data strobe
J10	SPI CS Routing Configuration	**1-2**	Routes the S1D13513 GPIO0 signal to JP1 (pin 1) for off-board use
		3-4	Routes the primary elevator SPI1 to the secondary elevator SPI2
		1-3	Routes the S1D13513 GPIO0 signal to secondary elevator SPI2 CS
		2-4	Routes the primary elevator SPI1 CS to JP1 (pin 1) for off-board use
J11	External LVDS Disable	**1-2**	Disables the LVDS transmitter (signals routed to J16 for off-board use)

TWR-LCDC-EPSON Jumper Settings

Continued

Jumper	Option	Setting	Description
J12	SPI CLK Routing Configuration	1-2	Routes the S1D13513 GPIO1 signal to JP1 (pin 2) for off-board use
		3-4	Routes the primary elevator SPI1 to the secondary elevator SPI2
		1-3	Routes the S1D13513 GPIO1 signal to secondary elevator SPI2 CLK
		2-4	Routes the primary elevator SPI1 CLK to JP1 (pin 2) for off-board use
J13	SPI MOSI Routing Configuration	1-2	Routes the S1D13513 GPIO2 signal to JP1 (pin 2) for off-board use
		3-4	Routes the primary elevator SPI1 to the secondary elevator SPI2
		1-3	Routes the S1D13513 GPIO2 signal to secondary elevator SPI2 MOSI
		2-4	Routes the primary elevator SPI1 MOSI to JP1 (pin 2) for off-board use

TWR-LCDC-EPSON Jumper Settings

Continued

Jumper	Option	Setting	Description
J14	SPI MISO Routing Configuration	1-2	Routes the S1D13513 GPIO3 signal to JP1 (pin 2) for off-board use
		3-4	Routes the primary elevator SPI1 to the secondary elevator SPI2
		1-3	Routes the S1D13513 GPIO3 signal to secondary elevator SPI2 MISO
		2-4	Routes the primary elevator SPI1 MISO to JP1 (Pin 2) for off-board use
J17	I^2C (SDA) Pass-Thru Selection	1-2	Routes the primary elevator I2C0 to secondary elevator I^2C2
		2-3	Routes the primary elevator I2C1 to secondary elevator I^2C2
J18	I^2C (SCL) Pass-Through Selection	1-2	Routes the primary elevator I2C0 to secondary elevator I^2C2
		2-3	Routes the primary elevator I^2C1 to secondary elevator I^2C2
J20	10 MHz OSC Disable	1-2	Disables the onboard 10 MHz oscillator connected to S1D13513 OSCI1

TWR-LCDC-EPSON Switch Settings

Switch	Option	Setting	Description
SW1	Reset	Push	Resets the S1D13513
SW2 [1:5]	S1D13513 Host Bus Interface Settings	1 2 3	Maps to S1D13513 CNF[0:4] (ON = 1 / OFF = 0) Default setting for Tower System is [On,On,On,Off,Off] Corresponding to Parallel Direct 68 bus interface
		4	
		5	
SW2 [6]	S1D13513 Endianness Setting	6	Maps to S1D13513 CNF[5] (ON = 1 / OFF = 0) Default setting for Tower System is [Off] Corresponding to Little Endian mode
SW2 [7]	S1D13513 Configuration Mode	7	Maps to S1D13513 CNF[6] (ON = 1 / OFF = 0) Default setting for Tower System is [On]

TWR-LCDC-EPSON Jumper Settings

Continued

Jumper	Option	Setting	Description
SW2 [8:9]	S1D13513 PLL Clock Source	8	Maps to S1D13513 CNF[7:8] (ON = 1 / OFF = 0) Default setting for Tower System is [Off,On] [Off,Off] = Use CLKI3 clock source (refer to J3) [On,Off] = Use BUSCLK (not applicable for direct interfaces) [Off,On] = Use OCSI1 clock source (refer to J20) [On,On] = Use OSCI2 clock source (refer to J2)
		9	
SW2 [10]	Not Used	10	

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Visit **freescale.com/TWR-LCDC-EPSON** for the latest information on the TWR-LCDC-EPSON Epson display controller module, including:

- Quick start guide
- Schematics

Support

Visit **freescale.com/support** for a list of phone numbers within your region.

Warranty

Visit **freescale.com/warranty** for complete warranty information.

For more information, visit freescale.com/Tower

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