



# Quick Start Guide

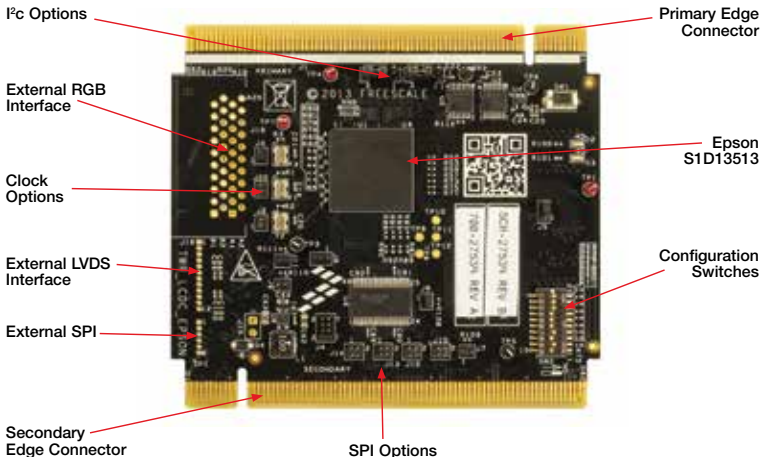
**TWR-LCDC-EPSON**

Epson Display Controller Module



**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<sup>2</sup>C 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](http://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 <sup>2</sup> C (SDA) Pass-Thru Selection	1-2	Routes the primary elevator I <sup>2</sup> C0 to secondary elevator I <sup>2</sup> C2
		2-3	Routes the primary elevator I <sup>2</sup> C1 to secondary elevator I <sup>2</sup> C2
J18	I <sup>2</sup> C (SCL) Pass-Through Selection	1-2	Routes the primary elevator I <sup>2</sup> C0 to secondary elevator I <sup>2</sup> C2
		2-3	Routes the primary elevator I <sup>2</sup> C1 to secondary elevator I <sup>2</sup> C2
J20	10 MHz OSC Disable	1-2	Disables the onboard 10 MHz oscillator connected to S1D13513 OSC1



# TWR-LCDC-EPSON Switch Settings

Switch	Option	Setting	Description
SW1	Reset	Push	Resets the S1D13513
SW2 [1:5]	S1D13513 Host Bus Interface Settings	1	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
		2	
		3	
		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 CLK13 clock source (refer to J3) [On,Off] = Use BUSCLK (not applicable for direct interfaces)
		9	[Off,On] = Use OCSI1 clock source (refer to J20) [On,On] = Use OSCI2 clock source (refer to J2)
SW2 [10]	Not Used	10	





Visit [freescale.com/TWR-LCDC-EPSON](http://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](http://freescale.com/support) for a list of phone numbers within your region.

## Warranty

Visit [freescale.com/warranty](http://freescale.com/warranty) for complete warranty information.

For more information, visit [freescale.com/Tower](http://freescale.com/Tower)

Join the online Tower community at [towergeeks.org](http://towergeeks.org)

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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
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