



Module for TWR-MEM

TOWER SYSTEM

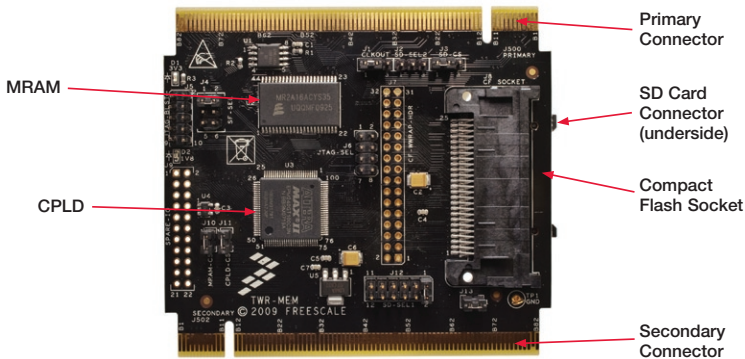


**TWR-MEM**  
Memory Module

 **freescale**<sup>™</sup>  
semiconductor



# Get to know the TWR-MEM



## TWR-MEM Freescale Tower System

The TWR-MEM module is part of the Freescale Tower System, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Take your design to the next level and begin constructing your Tower System today.

# How to build your Tower

**STEP 1**

Locate the Elevator modules, identifiable by the four card edge connectors on each.

**STEP 2**

Identify each Elevator module as either “Functional” or “Dummy” (written on the outward facing side of the board).

**STEP 3**

Locate the other modules you will use in your Tower System.

**STEP 4**

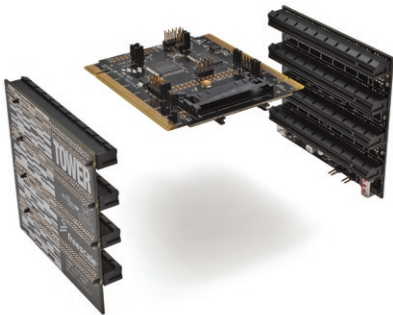
Identify the “primary” and “secondary” card edges for each module (written along the edge).

**STEP 5**

Plug the “primary” card edge of each module into the “functional” elevator.

**STEP 6**

Place the remaining “dummy” or “functional” Elevator module onto the “secondary” card edges.





## TWR-MEM Jumper Options

The following is a list of all the jumper options. The **\*default\*** installed jumper settings are shown in bold with asterisks.

Jumper	Option	Setting	Description
J1	CPLD GCLK3 Selection	<b>*1-2*</b>	Connect GCLK3 to Tower CLKOUT1 (B25)
		2-3	Connect GCLK3 to Tower CLKOUT0 (A64)
J2	SD Card SPI Mode Select Pull Option	1-2	Pull-up on SD Card DAT3/SS signal (SPI Mode Select)
		2-3	Pull-down on SD Card DAT3/SS signal (SPI Mode Select)
		<b>*OFF*</b>	No pull resistor applied
J3	SD Card SPI Mode Chip-Select	<b>*1-2*</b>	Connect SD Card DAT3/SS signal to SPI1_CS0 (B9)
		2-3	Connect SD Card DAT3/SS signal to SPI1_CS1 (B8)
J4	Serial Flash Configuration Options	<b>*1-2*</b>	Connect Serial Flash Chip-Select to Tower SPI Chip-Select
		2-3	Enable Serial Flash Write Protect
		5-6	Connect Serial Flash HOLD signal to Tower GPIO5 (B52)
J6	JTAG/GPIO Connections	1-2	Connect GPIO8 (A10) to CPLD JTAG TMS signal
		3-4	Connect GPIO9 (A9) to CPLD JTAG TDO signal
		5-6	Connect GPIO1 (B21) to CPLD JTAG TDI signal
		7-8	Connect GPIO3 (B23) to CPLD JTAG TCK signal
J10	MRAM Chip-Select Isolation	<b>*ON*</b>	Connect Flexbus CS0 to MRAM Chip-Select
		OFF	Disconnect Flexbus CS0 from MRAM Chip-Select
J11	CPLD Flexbus CS0 Isolation	<b>*ON*</b>	Connect Flexbus CS0 to CPLD pin 48
		OFF	Disconnect Flexbus CS0 from CPLD

Jumper	Option	Setting	Description
J12	SD Card Configuration Options	<b>*1-2*</b>	Connect SD Card Detect to IRQH (B55)
		3-4	Connect SD Card Detect to IRQA (B62)
		5-6	Connect SD_D[1] to GPIO2 (B22)
		7-8	Connect SD_D[2] to GPIO8 (A10)
		9-10	Apply pull-up to SD_CMD/MOSI
		11-12	Apply pull-up to SD_D[0]/MISO
J13	SD Card Write Protect Detect Isolation	<b>*ON*</b>	Connect SD Card Write Protect Detection to Tower GPIO7 (A11)
		OFF	Disconnect SD Card Write Protect Detection from Tower
J14	Serial Flash Chip-Select	<b>*1-2*</b>	Connect Serial Flash Chip-Select to SPI0_CS0 (B46)
		2-3	Connect Serial Flash Chip-Select to SPI0_CS1 (B47)
J15	MRAM Write Protect	<b>*ON*</b>	Normal MRAM operation (R/W)
		OFF	Write protect MRAM
J16	CPLD Chip-Select Selection	<b>*1-2*</b>	Use Flexbus CS0 as CPLD chip-select (pin 50)
		2-3	Use Flexbus CS1 as CPLD chip-select (pin 50)



## TWR-MEM Features

---

- 1 MB Serial Flash
- 512 KB MRAM
- SD Card Slot for Memory Expansion or SDIO Modules
- Programmable CPLD
- Compact Flash Interface (via CPLD)



Module for TWR-MEM

TOWER SYSTEM





To learn more about the TWR-MEM and other modules within the Tower System, go to [www.freescale.com/tower](http://www.freescale.com/tower). To become a member of the online Tower Geeks community, go to [www.towergeeks.org](http://www.towergeeks.org).

Freescale and the Freescale logo are trademarks or registered trademarks of Freescale Semiconductor, Inc. in the U.S. and other countries. All other product or service names are the property of their respective owners. © Freescale Semiconductor, Inc. 2010.

Doc Number: TWRMEMQSG / REV 0  
Agile Number: 926-78425 / REV A

