



## Quick Start Guide

# TWR-KM35Z75M

**Tower System for KM35Zx Family of MCUs**  
Power-Efficient, 75 MHz Arm® Cortex®-M0+ Based MCUs

TOWER SYSTEM DEVELOPMENT PLATFORM



## Quick Start Guide

### GET TO KNOW THE TWR-KM35Z75M

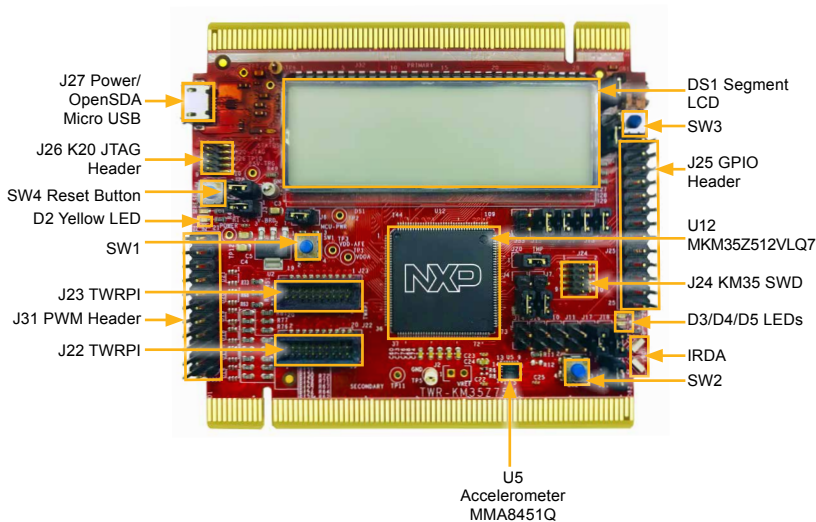


Figure 1: Front side of TWR-KM35Z75M board

## GET TO KNOW THE TWR-KM35Z75M

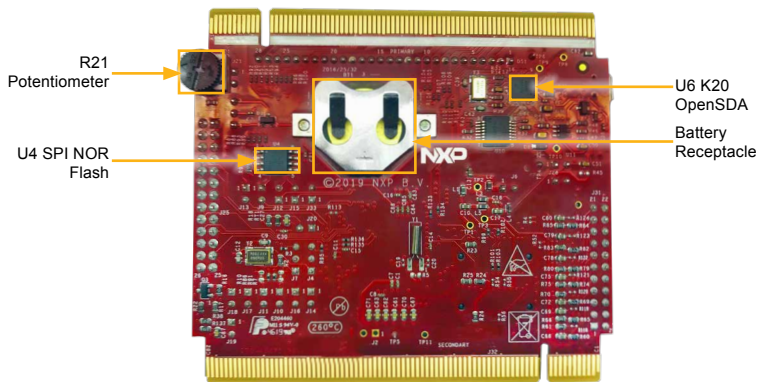


Figure 2: Back side of TWR-KM35Z75M board



## TWR-KM35Z75M

### Tower System Development Platform

The TWR-KM35Z75M board is designed to work either in standalone mode or as part of the NXP Tower System, a modular development board platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Begin constructing your Tower System evaluation board platform today by visiting [www.nxp.com/Tower](http://www.nxp.com/Tower) for additional Tower System boards and compatible peripherals.

### FEATURES

- Tower-compatible microcontroller module
- KM35Z512VLQ7 MCU (75 MHz, 512 KB Flash, 64 KB RAM, low power, LQFP144 package)
- USB interface with micro-B USB connector
- Large 160-segment glass LCD
- On-board debug circuit: Open source SWD (OpenSDA) with virtual serial port
- Three-axis accelerometer/anti tamper tilt sensor (MMA8451Q)
- Three user-controllable LEDs
- Two user push button switches for GPIO interrupts
- One user push button switch for tamper detection
- One user push button switch for MCU reset
- Potentiometer
- Headers for direct GPIO and ADC access
- External tamper pins
- Independent, battery-operated power supply for real-time clock (RTC) and tamper detection modules
- IRDA support
- NTC temperature sensor
- General-purpose tower plug-in (TWRPI) socket

### TOOLS

- IAR EWARM V8.50 or higher

## STEP-BY-STEP INSTRUCTIONS

In this Quick Start Guide, you will learn how to set up the TWR-KM35Z75M board and run the included demonstrated software. For more detailed information, review the user manual at [nxp.com/TWR-KM35Z75M](http://nxp.com/TWR-KM35Z75M).

### 1 Download Software



Download installation software and documentation under “Jump Start Your Design” at [nxp.com/TWR-KM35Z75M](http://nxp.com/TWR-KM35Z75M).

### 2 Install Software and Tools

Install the OpenSDA Tower Toolkit to install the OpenSDA and USB-to-Serial drivers.

### 3 Configure the Hardware

Connect one end of the USB cable to the PC, and the other end to the Power/OpenSDA micro-B connector (J27) on the TWR-KM35Z75M module. Allow the PC to automatically configure the USB drivers if needed.

### 4 Confirm Segment LCD

The Segment LCD displays as below:

- First, the digital numbers will display.
- Second, the icons will display one by one.
- Finally, all segments on will blink, then turn off.

### 5 Explore Further

Learn more about KM series MCUs, find Sigma-Delta ADC performance and low power modes, as well as software peripheral drivers and additional labs at [nxp.com/TWR-KM35Z75M](http://nxp.com/TWR-KM35Z75M).

### EXPANDED SOFTWARE AND TOOLS

Additional details regarding the Quick Start Demo are included as part of the MCUXpresso software development kit (SDK). To take your design to the next level, leverage the MCUXpresso SDK and other online enablement software and tools for NXP MCUs available at [nxp.com/MCUXpresso](https://www.nxp.com/MCUXpresso).

## TWR-KM35Z75M JUMPER OPTIONS

The following is a list of all the jumper options. The default installed jumper settings are indicated in the shaded boxes.

JUMPER	OPTION	SETTING	DESCRIPTION
J1	MCU power connection	1-2	Connect VBAT to on-board 3.3 V supply
		2-3	Connect VBAT to the higher voltage between MCU supply (MCU_PWR) or VBAT
J9	SPI NOR flash	ON	Connect MCU SPI signal to NOR flash
		OFF	Disconnect MCU SPI signal to NOR flash
J12	SPI NOR flash	ON	Connect MCU SPI signal to NOR flash
		OFF	Disconnect MCU SPI signal to NOR flash
J13	SPI NOR flash	ON	Connect MCU SPI signal to NOR flash
		OFF	Disconnect MCU SPI signal to NOR flash
J15	SPI NOR flash	ON	Connect MCU SPI signal to NOR flash
		OFF	Disconnect MCU SPI signal to NOR flash
J17	Orange LED drive	ON	Connect MCU GPIO to drive orange LED
		OFF	Disconnect MCU GPIO to drive orange LED

### TWR-KM35Z75M JUMPER OPTIONS CONTINUED

JUMPER	OPTION	SETTING	DESCRIPTION
J18	IRDA transmit	ON	Connect MCU IRDA transmit signal
		OFF	Disconnect MCU IRDA transmit signal
J19	IRDA receive	ON	Connect MCU IRDA receive signal
		OFF	Disconnect MCU IRDA receive signal
J3	MCU_PWR selection	ON	MCU powered from V_BRD 3.3V on board reg.
		OFF	MCU can be supplied by ext. voltage connected to J6 - pin 1
J6	Analog power enable	ON	Connect analog voltages to V_BRD
		OFF	External VDDA can be applied
J21	Pot. enable	ON	Connect PTF1/ADC0_SE8 to pot. R21
		OFF	Disconnect PTF1/ADC0_SE8 to pot. R21
J20	Temp. sensor enable	ON	Connect PTF2/ADC0_SE9 to temp. sensor
		OFF	Disconnect PTF2/ADC0_SE9 to temp. sensor



## TWR-KM35Z75M JUMPER OPTIONS CONTINUED

JUMPER	OPTION	SETTING	DESCRIPTION
J28	OpenSDA reset enabled	ON	KM35 reset input driven by K20 OpenSDA
		OFF	KM35 reset input isolated from OpenSDA
J4	8M Crystal	1-2	Connect MCU EXTAL pin to crystal
		2-3	Connect MCU EXTAL pin to external clock
J7	8M Crystal	1-2	Connect MCU XTAL pin to crystal
		2-3	Connect MCU XTAL pin to GND

### GPIO HEADER (J25) SIGNAL CONNECTIONS

MCU SIGNAL	J25 PIN		MCU SIGNAL
SW3 (Tamper switch)	1	2	SW3 to TAMPER0 (when closed)
SW3 (Tamper switch)	3	4	SW3 to TAMPER0 (when closed)
SW3 (Tamper switch)	5	6	SW3 to TAMPER0 (when closed)
V_BRD	7	8	PTK5/UART1_RX
PTK6/UART1_TX	9	10	GND
PTL0/I2C0_SDA	11	12	PTK7/I2C0_SCL
PTF6/SPI1_MOSI	13	14	PTF5/SPI1_MISO
PTF4/SPI1_SCK	15	16	PTF3/SPI1_PCS0
PTD0/CMP0_IN0	17	18	PTF7/CLKOUT
PTL1/XBAR0_IN10	19	20	PTG0/QTMR0_TMR1/LPTMR0_ALT3
PTK4/AFE_CLK	21	22	PTK2/UART0_TX/ADC0_SE14
PTL2/XBAR0_OUT10	23	24	PTK3/UART0_RX/ADC0_SE15
VSSA	25	26	GND

## ANALOG INPUTS/GENERATOR OUTPUTS (J31)

MCU SIGNAL	J31 PIN		MCU SIGNAL
EXT_PWM0	1	2	EXT_SD_ADP0
VSSA_AFE	3	4	EXT_SD_ADM0
EXT_PWM1	5	6	EXT_SD_ADP1
VSSA_AFE	7	8	EXT_SD_ADM1
EXT_PWM2	9	10	EXT_SD_ADP2
VSSA_AFE	11	12	EXT_SD_ADM2
EXT_PWM3	13	14	EXT_SD_ADP3
VSSA_AFE	15	16	EXT_SD_ADM3
EXT_PWM4	17	18	EXT_SAR_AD0
EXT_PWM5	19	20	EXT_SAR_AD1
EXT_PWM6	21	22	EXT_SAR_AD2

## SUPPORT

Visit [www.nxp.com/support](http://www.nxp.com/support) for a list of phone numbers within your region.

## WARRANTY

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



## Get Started

Download installation software and documentation under **"Jump Start Your Design"** at [www.nxp.com/TWR-KM35Z75M](http://www.nxp.com/TWR-KM35Z75M).

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