DEVKIT-S12ZVC
QUICK START GUIDE (QSG)

ULTRA-RELIABLE MCUs FOR
INDUSTRIAL AND AUTOMOTIVE



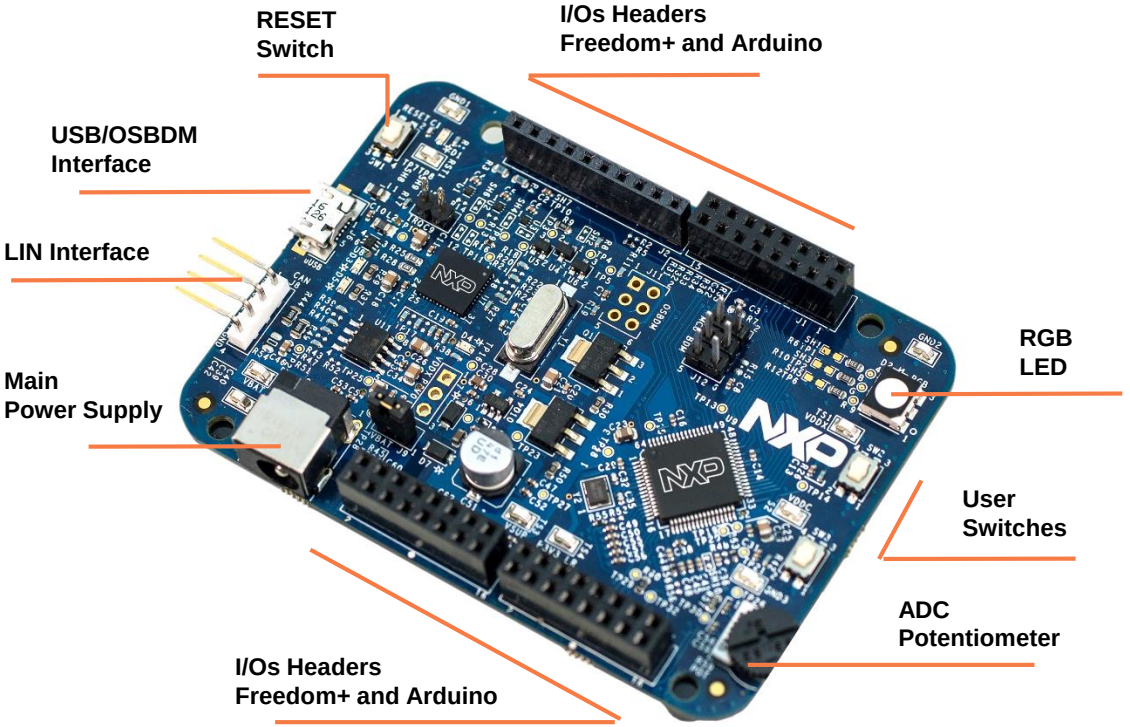
EXTERNAL USE

SECURE CONNECTIONS
FOR A SMARTER WORLD

Get to know the DEVKIT-S12ZVC

The DEVKIT-S12ZVC is an ultra-low-cost development platform for S12 Microcontrollers.

Features include easy access to all MCU I/O´s, a standard-based form factor compatible with the Arduino™ pin layout, providing a broad range of expansion board options, and an USB serial port interface for connection to the IDE, the board has option to be powered via USB or an external power supply.



DEVKIT-S12ZVC Features

Power Supply and Communications

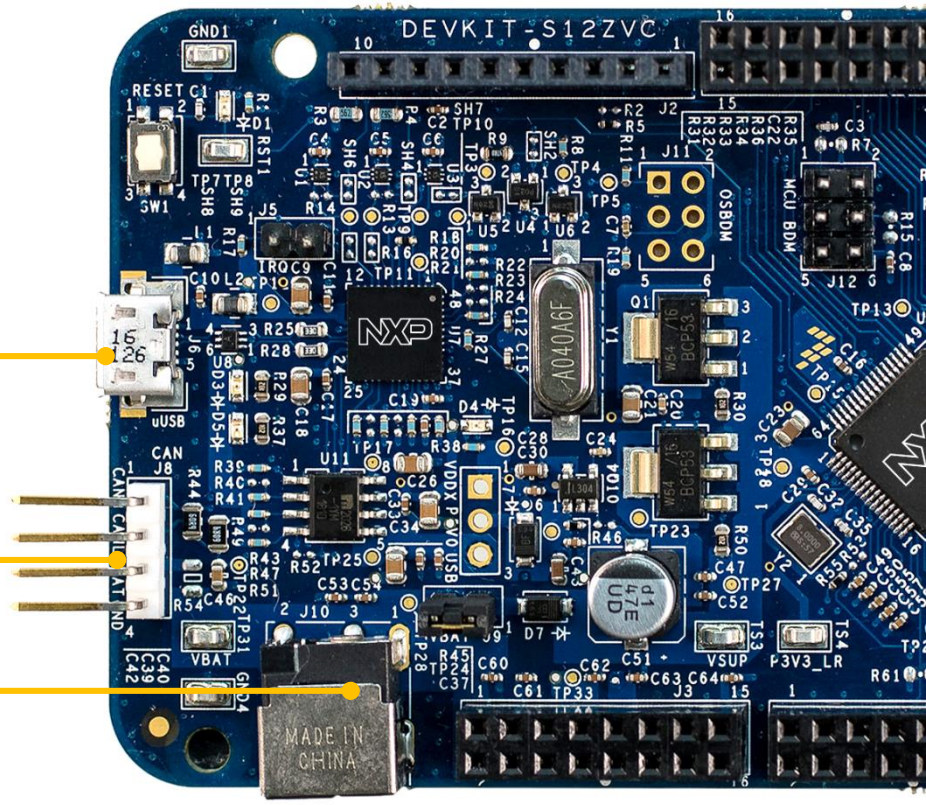
USB/OSBDM Connector
CON 1X5 USB_MICRO_AB_RECEPTACLE
RA SMT 0.65MM SP 105H AU

DESCRIPTION	NAME	PIN
	CANH	**J8-01**
	CANL	**J8-02**
	VBAT	**J8-03**
	GND	**J8-04**

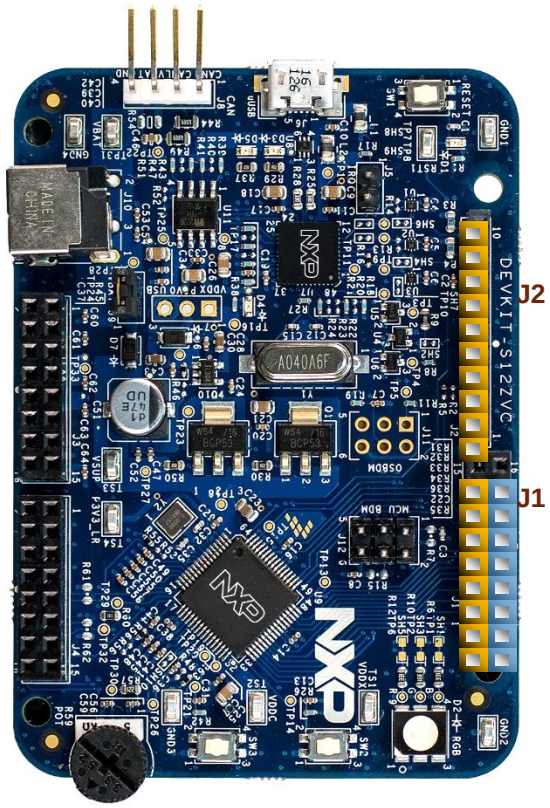


DESCRIPTION	NAME	PIN
	VBAT	**J1-01**
	GND	**J1-03**

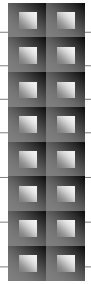




Input/Output Connectors



FUNCTION	PORT	PIN
RXD	PS4	**J1-01**
TXD	PS5	**J1-03**
PWM	PP0	**J1-05**
PWM	PP1	**J1-07**
PWM	PP2	**J1-09**
PWM	PP3	**J1-11**
PWM	PP4	**J1-13**
PWM	PP5	**J1-15**



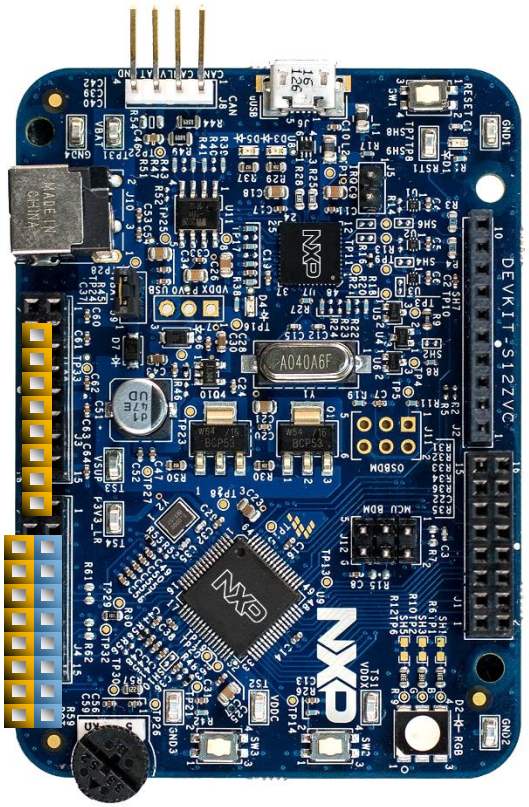
PIN	PORT	FUNCTION
J1-02	PT2	GPIO
J1-04	PT3	GPIO
J1-06	PT6	GPIO
J1-08	PT4	GPIO
J1-10	PT5	GPIO
J1-12		
J1-14		
J1-16		

FUNCTION	PORT	PIN
PWM	PT7	**J2-01**
PWM	PP7	**J2-02**
SPISS PWM	PS3/PP6	**J2-03**
SPIMOSI PWM	PS1	**J2-04**
SPIMISO	PS0	**J2-05**
SPISCK	PS2	**J2-06**
	GND	**J2-07**
	AREF	**J2-08**
SDA	PJ1	**J2-09**
SCL	PJ0	**J2-10**

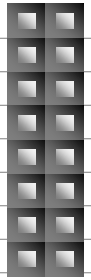


Arduino Compatibility
The internal rows of the I/O headers on the DEVKIT-S12ZVC are arranged to fulfill Arduino™ shields compatibility .

Input/Output Connectors

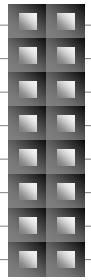


FUNCTION	PORT	PIN
VIN		J3-01
VDD		J3-02
RESET		J3-03
P3V3		J3-04
P5V0		J3-05
GND		J3-06
GND		J3-07
VIN		J3-08



PIN	PORT	FUNCTION
J3-02		
J3-04		
J3-06	PDA10	
J3-08	PDA11	
J3-10	PDA12	
J3-12	PDA13	
J3-14	PDA14	
J3-16	PDA15	

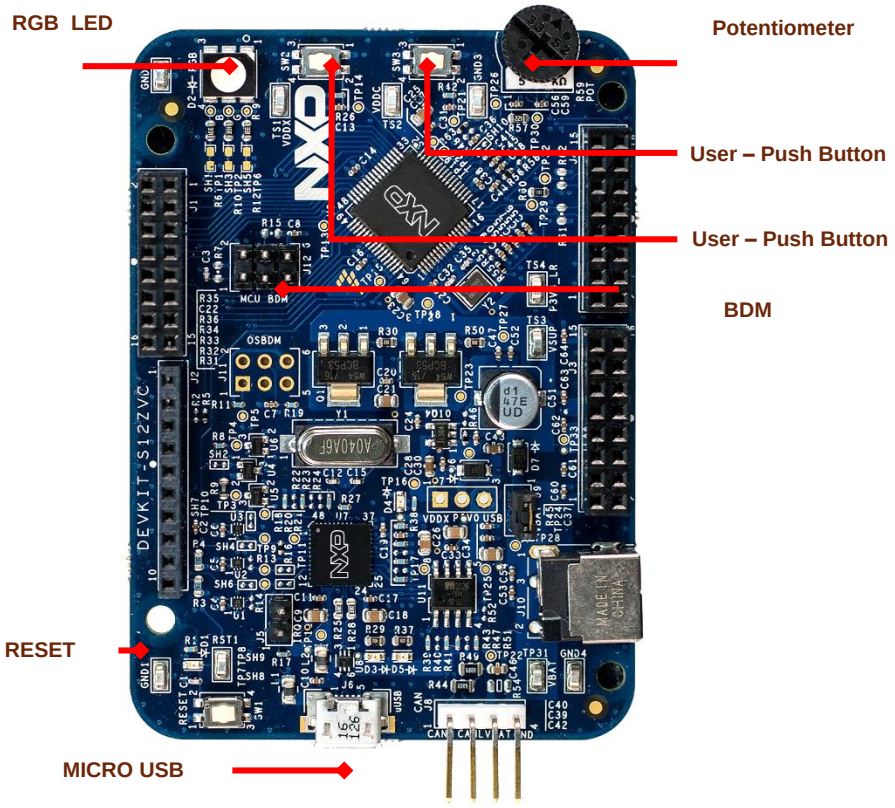
FUNCTION	PORT	PIN
ADC	AN7	J4-01
ADC	AN6	J4-03
ADC	AN5	J4-05
ADC	AN4	J4-07
ADC	AN3	J4-09
ADC	AN2	J4-11
ADC	AN1	J4-13
ADC	AN0	J4-15



PIN	PORT	FUNCTION
J4-02		
J4-04		
J4-06	PS6	
J4-08	PS7	
J4-10	PL1	
J4-12	PL0	
J4-14	AN9	
J4-16	AN8	

Arduino Compatibility
The internal rows of the I/O headers on the DEVKIT-S12VC are arranged to fulfill Arduino™ shields compatibility .

Programming interface and User Peripherals



Peripheral	ID	MCU Port	Description
Buttons	SW2	PAD11	User switch (Active high)
	SW3	PAD10	User switch (Active high)
	SW1	RESET	RESET Switch
Potentiometers	R59	AN1	Potentiometer connected to ADC port AN0/AN1
LED	D2	PP4	RGB LED - Green
		PP5	RGB LED - Red
		PP6	RGB LED - Blue
	D3	-	OSBDM PWR LED, ON when OSBDM is successfully enumerated as USB device.
	D5	-	OSBDM STATUS LED. ON when OSBDM is successfully transmitting as USB device.
	D4	VDDX	MCU Power LED Indicator. ON when VDDX is regulating to +5V
	D1	RESET	RESET LED Indicator
Communication	J6	-	OSBDM USB
	J8	CAN	CAN Interface

CAUTION:
When powered from the USB bus, do not exceed the 500mA maximum allowable current drain. Damage to the target board or host PC may result.

Step-by-Step Installation Instructions

1

Install Software and Tools

Install CodeWarrior Development Studio for S12Z 10.6(Eclipse).

2

Connect the USB Cable

Connect one end of the USB cable to the PC and the other end to the mini-B connector on the DEVKIT-S12ZVC board. Allow the PC to automatically configure the USB drivers if needed.

3

Using the Example Project

The pre-loaded example project utilizes the **DEVKIT-S12ZVC** potentiometer and the RGB LED. Once the board is plugged in you can adjust the potentiometer and the RGB LEDs should illuminate/de-illuminate in response. Each color will change when the potentiometer position is adjusted.

4

Learn More About the S12ZVC

Read the release notes and documentation on the freescale.com/S12ZVC.

- The Processor Expert graphical initialization software included in your CodeWarrior installation will help reduce your time to market
- CodeWarrior for S12Z with examples

In this quick start guide, you will learn how to set up the **DEVKIT-S12ZVC** board and run the default exercise.



Documentation and References

Application Notes

- **AN4867**, Hardware Design Guidelines for S12ZVC - Application notes (REV 3)
- **AN5082**, MagniV in 24 V Applications - Application note (REV 1)
- **AN5090**: Using the S12ZVC Device for Industrial Applications (REV 0)

Reference Manual and Datasheet

- MC9S12ZVC-Family Reference Manual & Datasheet



For more information please visit : www.nxp.com/S12ZVC

Development Tools Ecosystem

Compilers
- Codewarrior S12Z
- Cosmic

IDE
- Codewarrior
- Cosmic Zap

Programmers
- P&E
- Cyclone Pro Programmer

Debugger
- CW & P&E S12 Debugger
- Cosmic Zap Debugger
- iSYSTEM winIDEA

Support Tools:
- FREEMASTER run time debugger and for instrumentation/calibration







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FOR A SMARTER WORLD