DEVKIT-S12VR
QUICK START GUIDE (QSG)

ULTRA-RELIABLE MCUs FOR
INDUSTRIAL AND AUTOMOTIVE

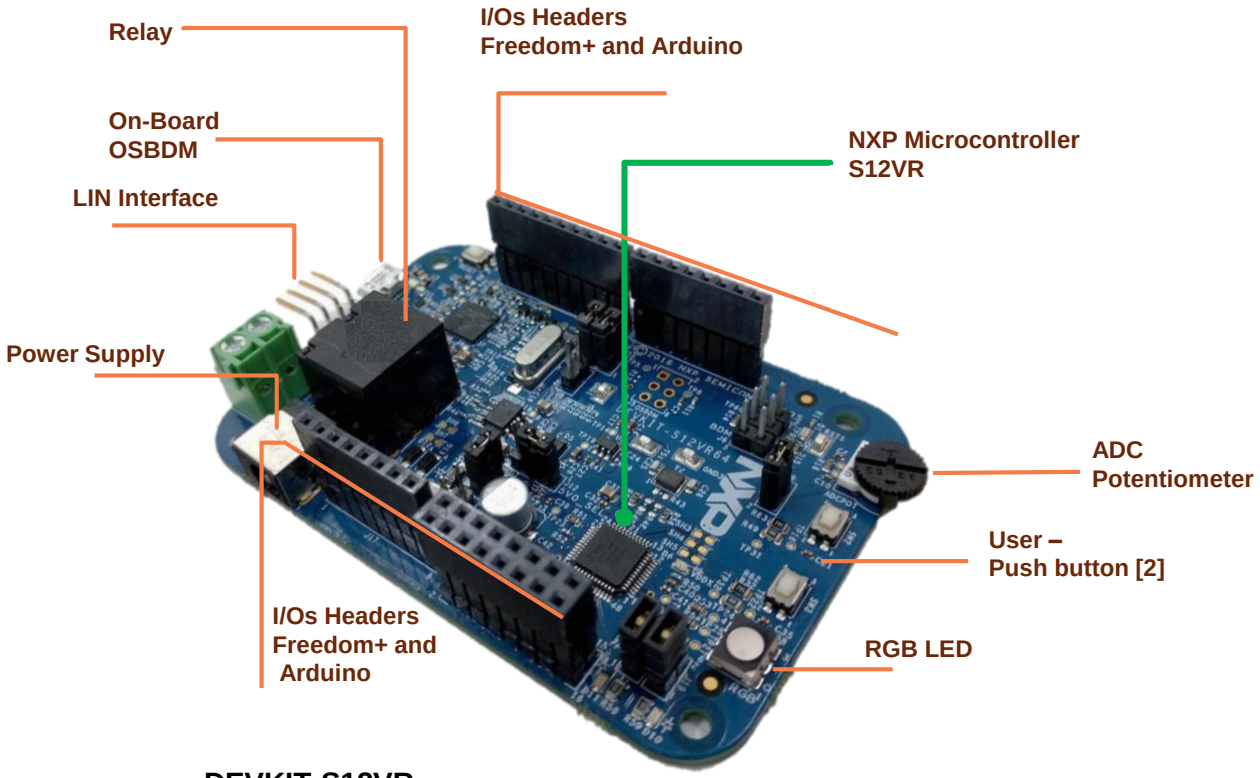
EXTERNAL USE

SECURE CONNECTIONS
FOR A SMARTER WORLD

Get to know the DEVKIT-S12VR

The DEVKIT-S12VR 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.

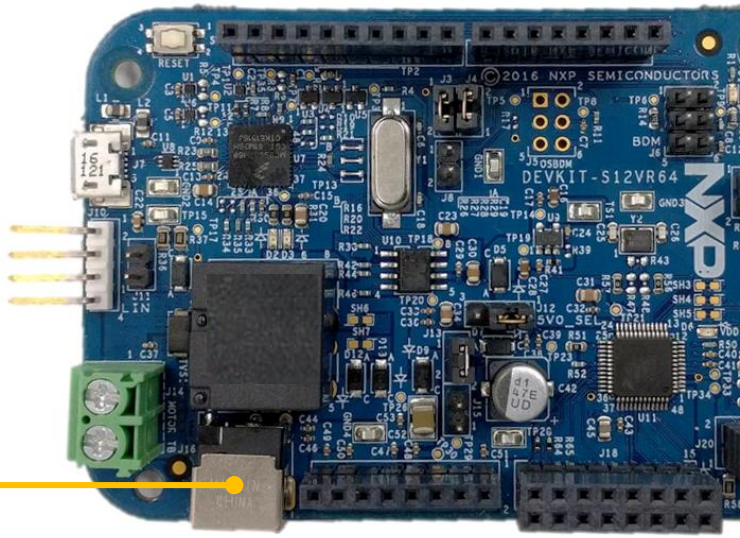


DEVKIT-S12VR Features

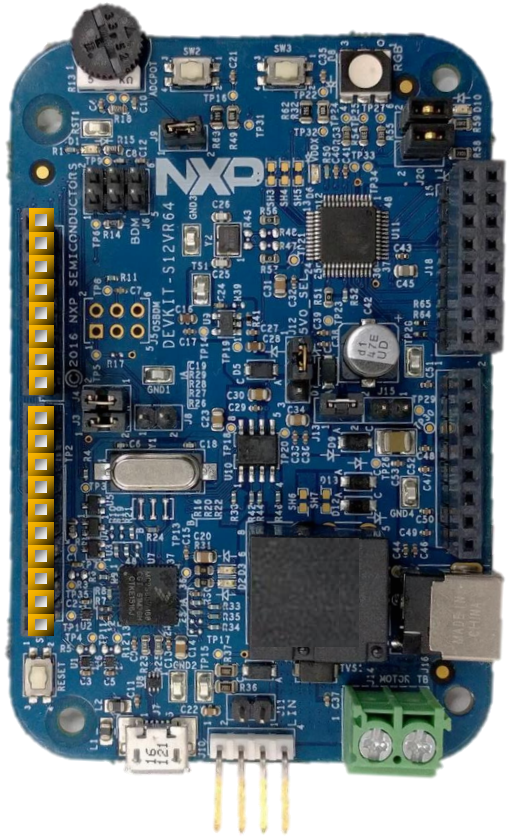
Power Supply and Communications

DESCRIPTION	NAME	PIN
	LIN	**J10-01**
	VLIN	**J10-02**
	GND	**J10-03**
	GND	**J10-04**

DESCRIPTION	NAME	PIN
	VBAT	**J16-01**
	GND	**J16- 02/03**



Input/Output Connectors

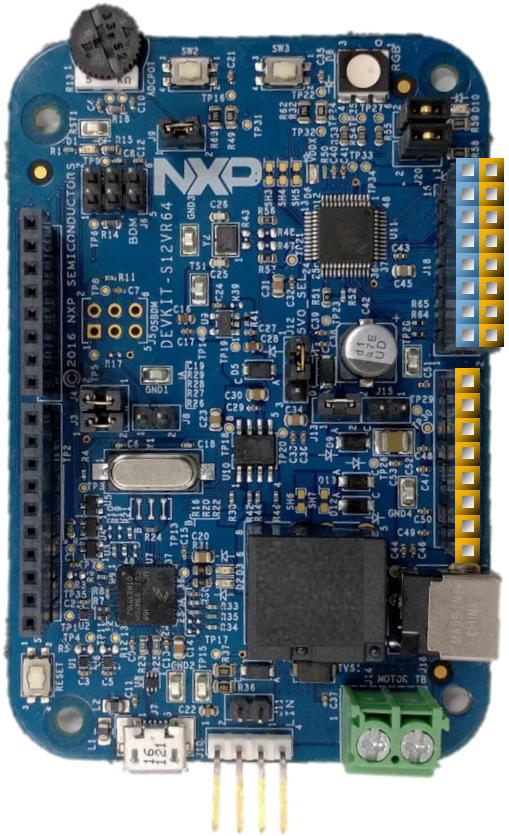


PIN	PORT	FUNCTION	J1
J1-01	PT0	PWM6	
J1-02	PT1	PWM7	
J1-03	PS5	SS	
J1-04	PS3	MOSI	
J1-05	PS2	MISO	
J1-06	PS4	SCK	
J1-07	GND	GND	
J1-08	VDDX	VDDX	
J1-09	PL2	HVI2	
J1-10	PL3	HVI3	

PIN	PORT	FUNCTION	J2
J2-01	PS0	RXD1	
J2-02	PS1	TXD1	
J2-03	PP0	PWM0	
J2-04	PP1	PWM1	
J2-05	PP2	PWM2	
J2-06	PP3	PWM3	
J2-07	PP4	PWM4	
J2-08	PP5	PWM5	

Arduino Compatibility
The internal rows of the I/O headers on the DEVKIT-S12VR are arranged to fulfill Arduino™ shields compatibility .

Input/Output Connectors



J18

J17

PIN	PORT	FUNCTION
J17-01		VBAT
J17-02		VDDX
J17-03		RESET_B
J17-04		P3V3
J17-05		P5V0
J17-06		GND
J17-07		GND
J17-08		VBAT

J17

PIN	PORT	FUNCTION	PIN	PORT	FUNCTION
J3-02	PE0	GPIO	J3-01	PL1	HVI1
J3-04	PE1	GPIO	J3-03	PL0	HVI0
J3-06	PT2	GPIO	J3-05	PAD5	ADC5
J3-08	PT3	GPIO	J3-07	PAD4	ADC4
J3-10	HS0	HS0	J3-09	PAD3	ADC3
J3-12	HS1	HS1	J3-11	PAD2	ADC2
J3-14	LS0	LS0	J3-13	PAD1	ADC1
J3-16	LS1	LS1	J3-15	PAD0	ADC0

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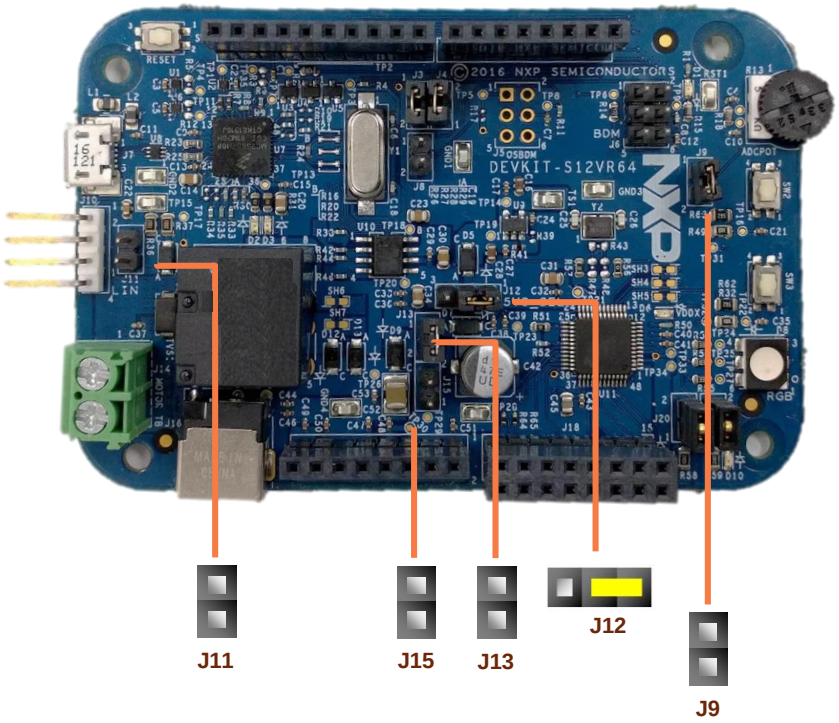
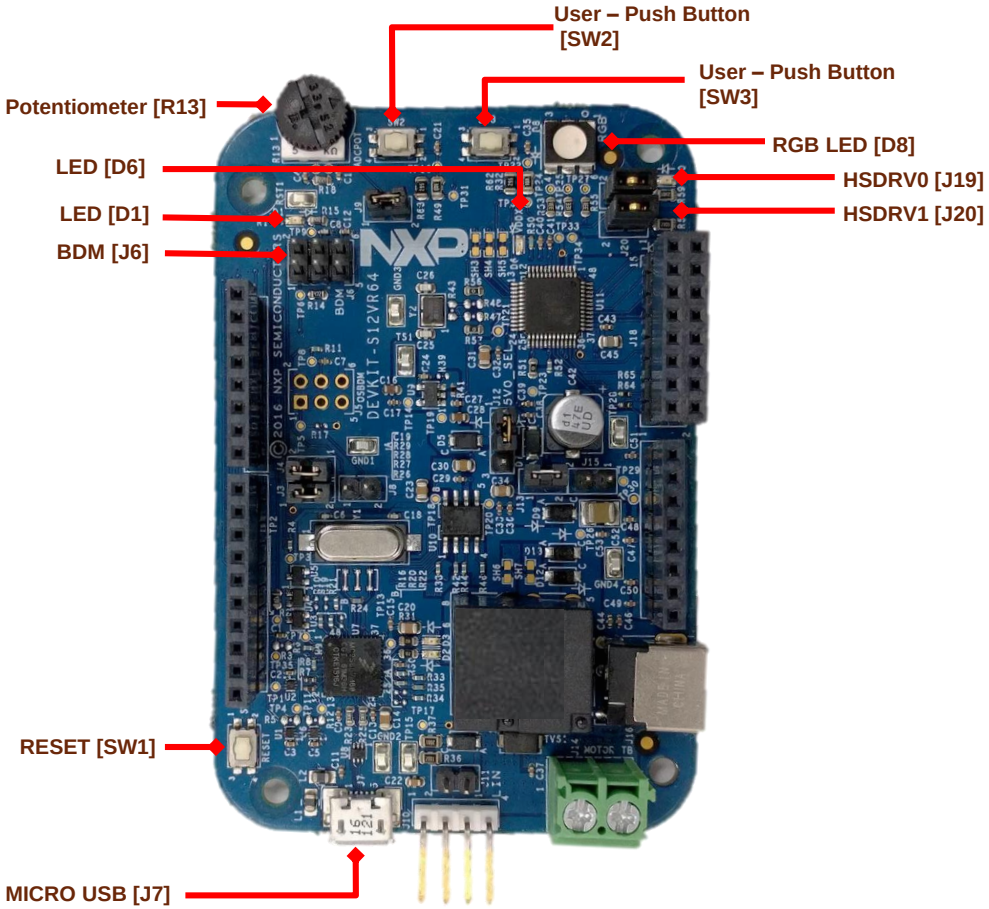
Default jumpers



REF	POSITION	DESCRIPTION
J11	OPEN	Enable LIN Master mode
J15	1-2	Power the board from LIN VBAT
J13	1-2	Supply the board with different voltage supply
J9	1-2	Connect or disconnect potentiometer from ADC
J12	1 - 2	Shield is being powered from VDDX (MCU)
	2 – 3 [DEFAULT]	Shield is being powered from USB port

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.

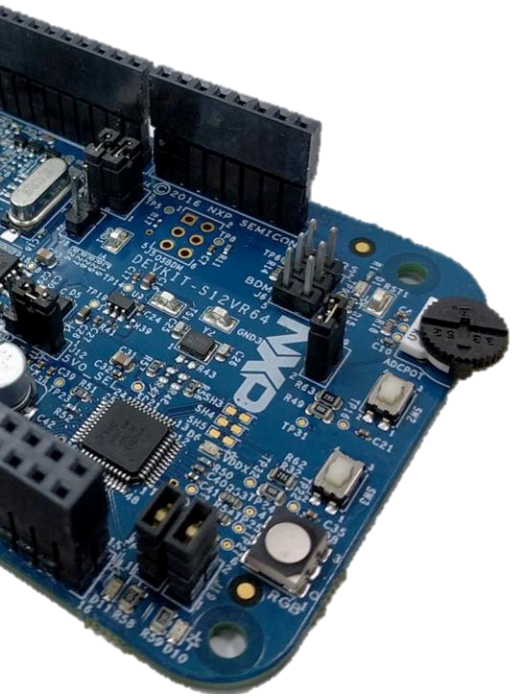
Programming interface and User Peripherals



REFERENCE		MCU PORT	DESCRIPTION
Potentiometer	R13	AN0	Rotary Potentiometer
Push Button	SW1	RESET	
	SW2	PL0	
	SW3	PL1	
LED	D6	PWR	VDDX power Indicator
	D1	RESET	RESET LED indicator
	D8 RGB	PP2	User LED
		PP3	User LED
		PP4	User LED
HSDRV Indicators	J19	HS0	Activate HS0 LED indicator
	J20	HS1	Activate HS1 LED indicator
Programming and Debug Interface	J7		On-board JTAG connection via open source OSBDM circuit using the MC9S08JM60 microcontroller
	J6		Support for USB Multilink Interface BDM

Step-by-Step Installation Instructions

In this quick start guide, you will learn how to set up the **DEVKIT-S12VR** board and run the default exercise.



1

Install Software and Tools

Install CodeWarrior Development Studio for S12 V5.1 or later. CodeWarrior Dev Tools for HCS12(X) MCUs

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-S12VR board. Allow the PC to automatically configure the USB drivers if needed.

3

Using the Example Project

The pre-loaded example project utilizes the RGB LED. Once the board is plugged in you can see how the RGB LEDs change the color.

4

Learn More About the S12VR

Read the release notes and documentation on the nxp.com/S12VR.

- The Processor Expert graphical initialization software included in your CodeWarrior installation will help reduce your time to market
- CodeWarrior for S12 with examples

CAUTIONARY NOTES

- Electrostatic Discharge (ESD) prevention measures should be used when handling this product. ESD damage is not a warranty repair item.
- NXP does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under patent rights or the rights of others.
- EMC Information on the DEVKIT-S12VR board:
  - This product as shipped from the factory with associated power supplies and cables, has been verified to meet with requirements of CE and the FCC as a CLASS A product.
  - This product is designed and intended for use as a development platform for hardware or software in an educational or professional laboratory.
  - Attaching additional wiring to this product or modifying the products operation from the factory default as shipped may effect its performance.

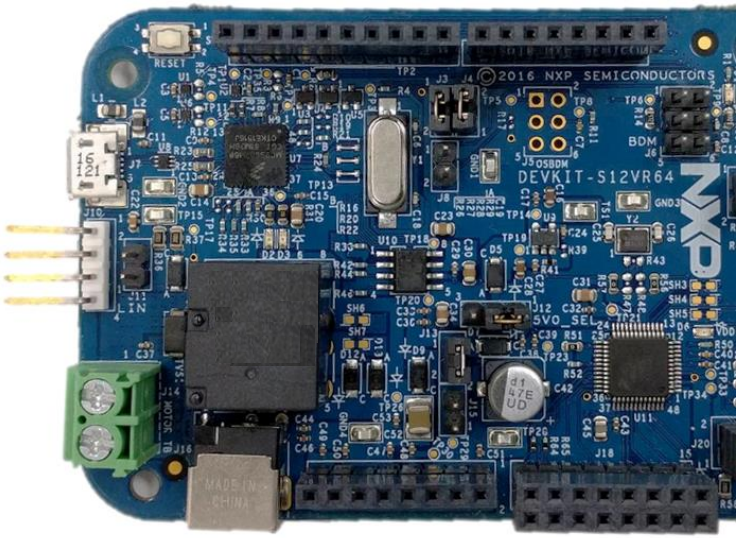
Documentation and References

Application Notes

- AN4643, S12VR Hardware Design Guidelines
- AN4975: Using MSCAN on the MagniV Family
- AN5122, Using NXP's LIN Driver with the MagniV Family
- MC9S12VR Family Demonstration Lab Training

Reference Manuals

- MC9S12VRRM, MC9S12VR-Family Reference Manual



For more information please visit : www.nxp.com/S12VR

Development Tools Ecosystem

Compilers
- Codewarrior S12

IDE
- Codewarrior

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

FREEMASTER

LAUTERBACH DEVELOPMENT TOOLS

SECURE CONNECTIONS
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