DEVKIT-S12VRP
QUICK START GUIDE (QSG)

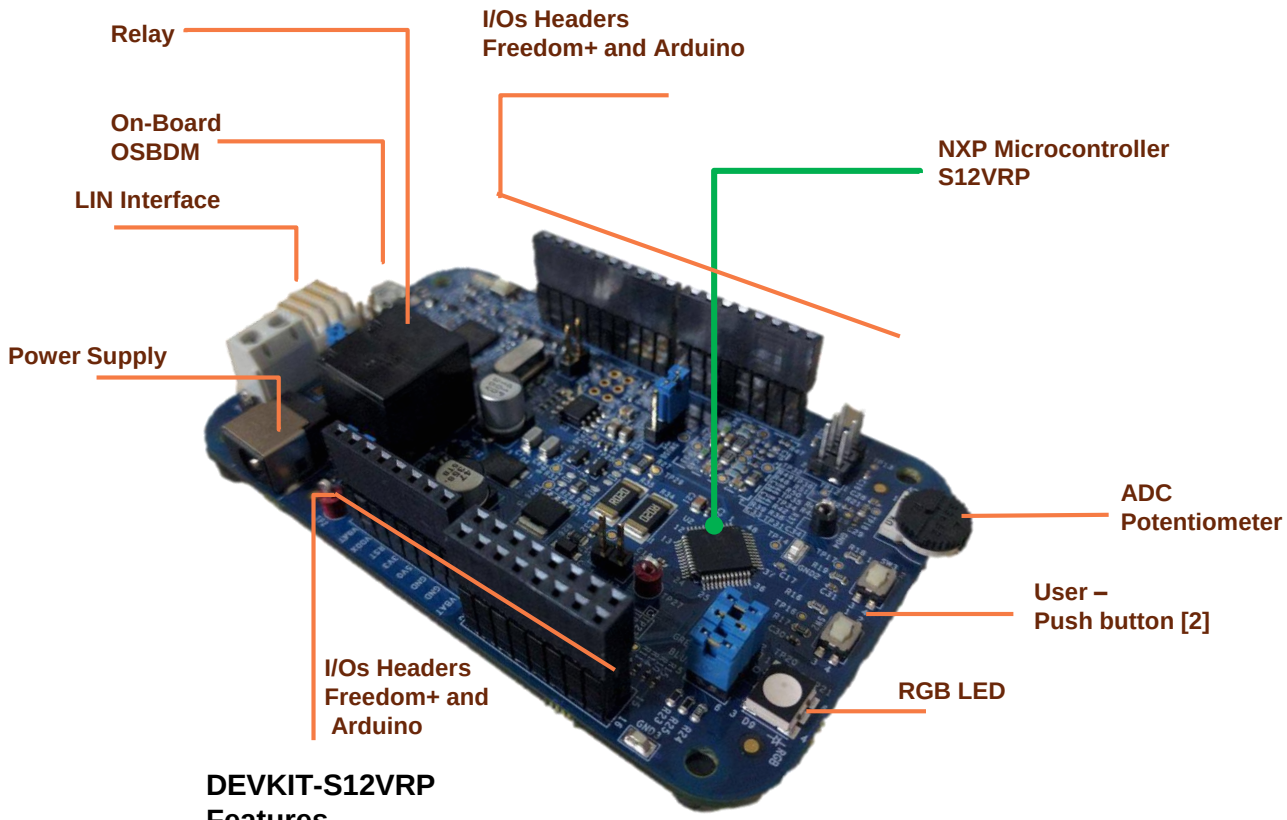
ULTRA-RELIABLE MCUs FOR
INDUSTRIAL AND AUTOMOTIVE

SECURE CONNECTIONS
FOR A SMARTER WORLD

Get to know the DEVKIT-S12VRP

The DEVKIT-S12VRP 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.

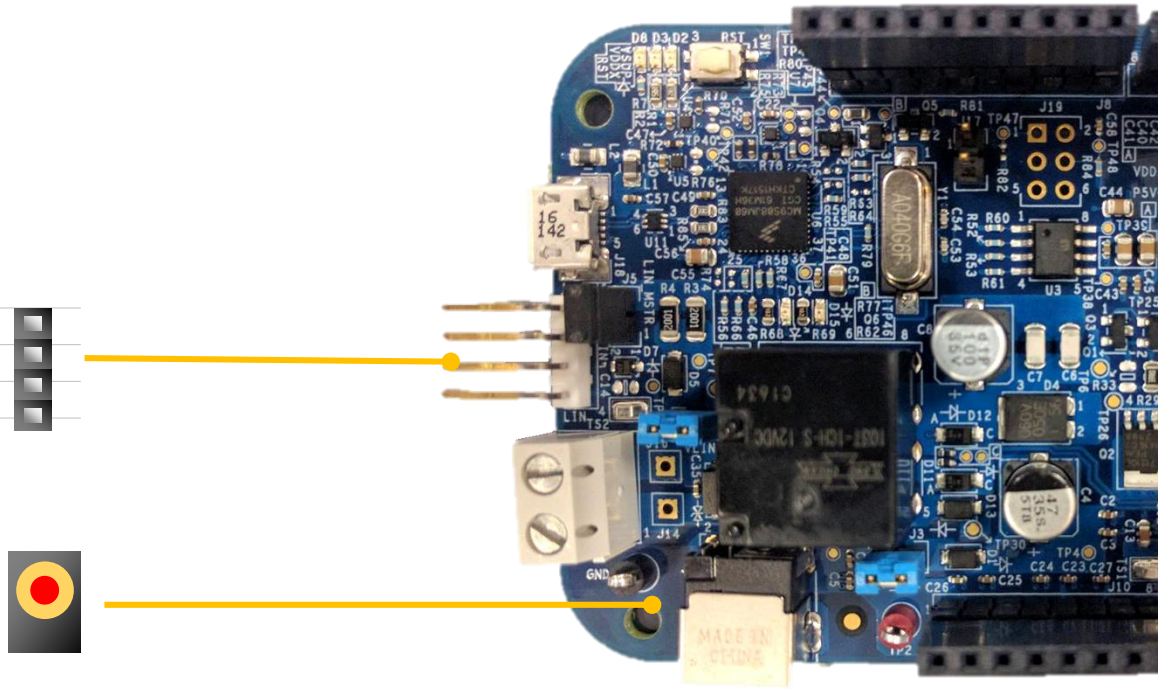


DEVKIT-S12VRP Features

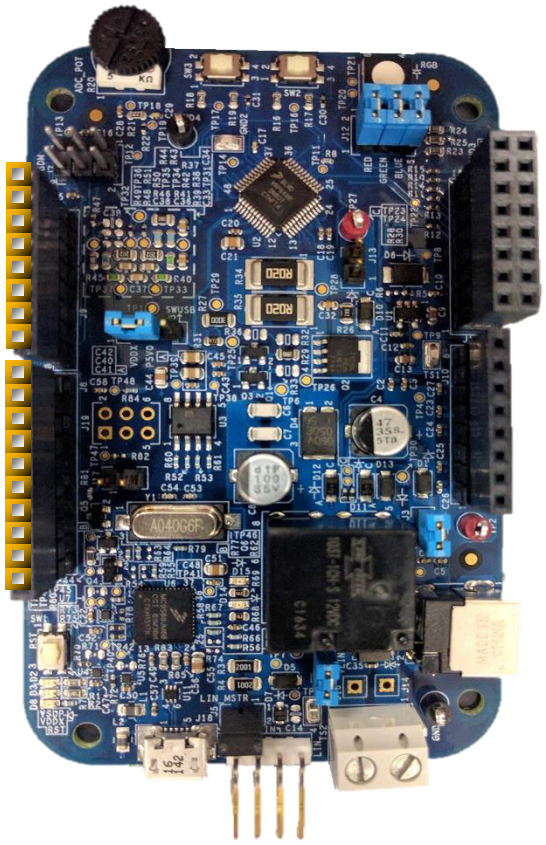
Power Supply and Communications

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

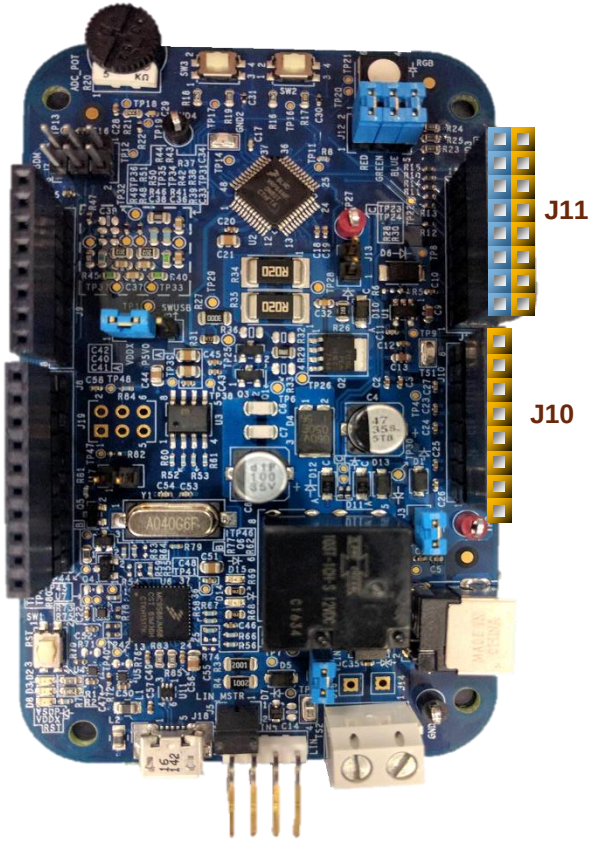


PIN	PORT	FUNCTION	J9
J9-01	PS0	**RXD1**	
J9-02	PS1	**TXD1**	
J9-03	PP0	**PWM0 / PGPIO**	
J9-04	PP1	**PWM1**	
J9-05	PP2	**PWM2 / EVDD**	
J9-06	PP3	**PWM3**	
J9-07	PP4	**PWM4**	
J9-08	PP5	**PWM5**	

PIN	PORT	FUNCTION	J8
J8-01	PT0	**PWM6**	
J8-02	PT1	**PWM7**	
J8-03	PT2	**GPIO**	
J8-04	PT3	**GPIO**	
J8-05	PS3	**GPIO / ECLK**	
J8-06	PS2	**GPIO / RXD1**	
J8-07	GND	**GND**	
J8-08	VDDX	**VDDX**	
J8-09	PL2	**GPIO/HVI**	
J8-10	PL3	**GPIO/HVI**	

Arduino Compatibility
The internal rows of the I/O headers on the DEVKIT-S12VRP are arranged to Arduino™ shields compatibility .

Input/Output Connectors



PIN	PORT	FUNCTION	J11	PIN	PORT	FUNCTION
J11-02	PE0	**GPIO**		J11-01	PAD0	**ADC0**
J11-04	PE1	**GPIO**		J11-03	PAD1	**ADC1**
J11-06	PL4	**GPIO / HVI**		J11-05	PAD2	**ADC2**
J11-08	PL5	**GPIO / HVI**		J11-07	PAD3	**ADC3**
J11-10	HS0	**HS0**		J11-09	PAD4	**ADC4**
J11-12	HS1	**HS1**		J11-11	PAD5	**ADC5**
J11-14	LS0	**LS0**		J11-13	PL0	**GPIO / HVI**
J11-16	LS1	**LS1**		J11-15	PL1	**GPIO / HVI**

PIN	PORT	FUNCTION	J10
J10-01		**VBAT**	
J10-02		**VDDX**	
J10-03		**RESET_B**	
J10-04		**P3V3**	
J10-05		**P5V0**	
J10-06		**GND**	
J10-07		**GND**	
J10-08		**VBAT**	

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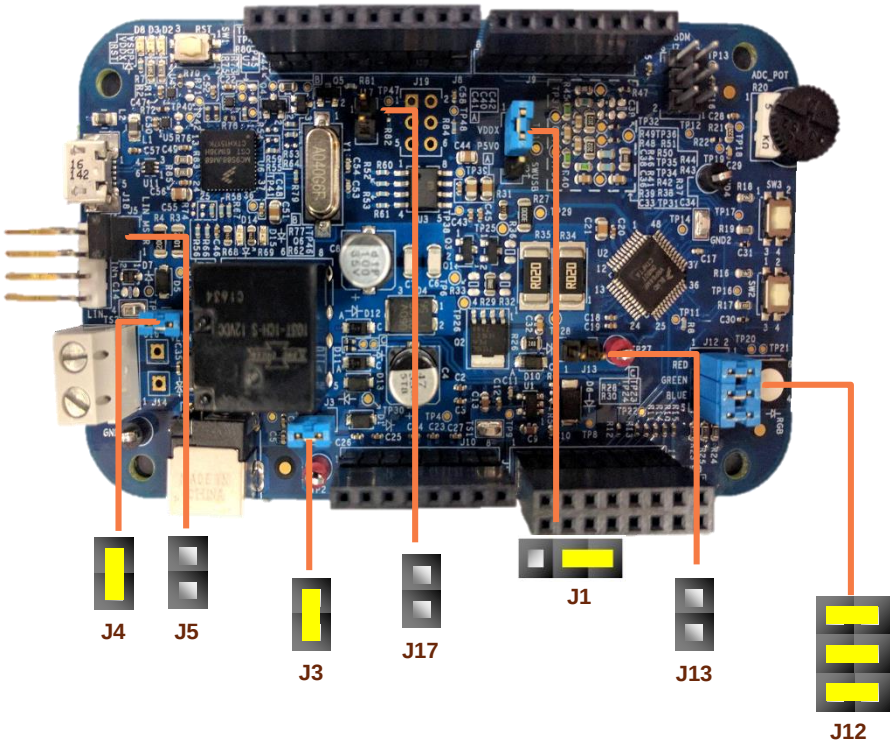
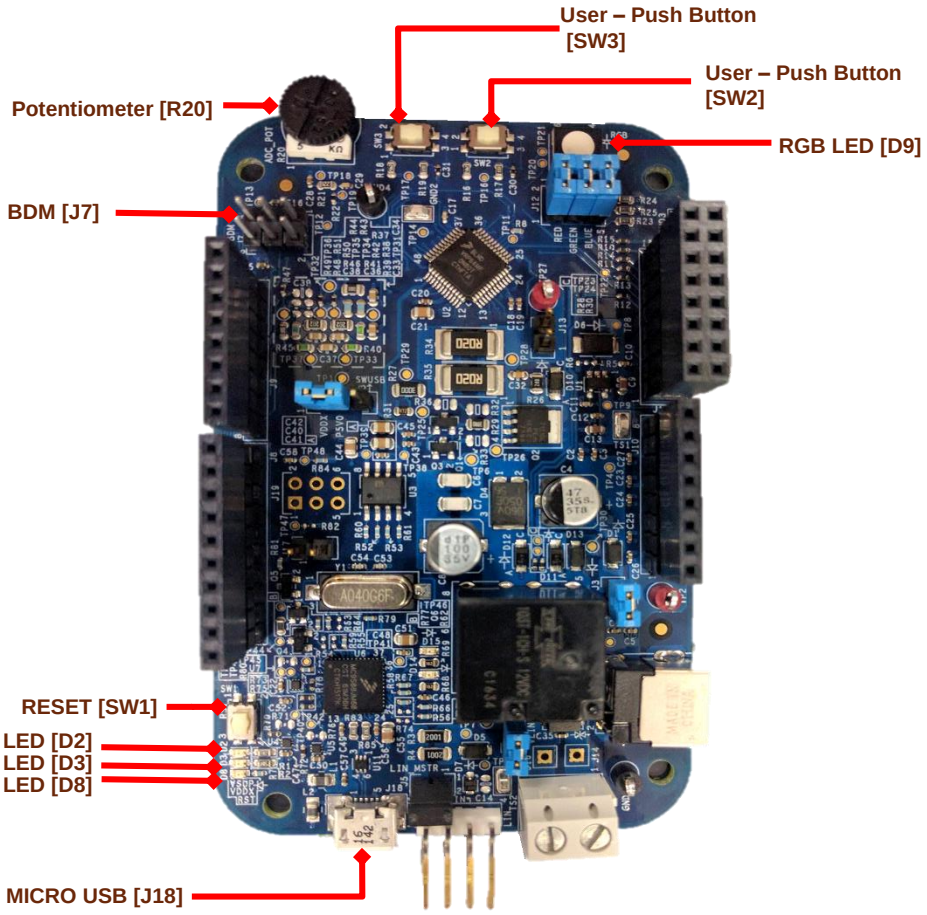
Default jumpers



REF	POSITION	DESCRIPTION
J1	1 - 2	Shield is being powered from VDDX . [DEFAULT]
	2-3	Shield is being powered from USB port
J3	1-2	Connect VBAT to VSUP
J4	1-2	Power VLIN
J5	1-2	Select Master Mode when using LIN
J13	1-2	OSBDM options
J12	-	Connects the RGB LED
J17	1-2	Place it when is not used the ISENSE module

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.

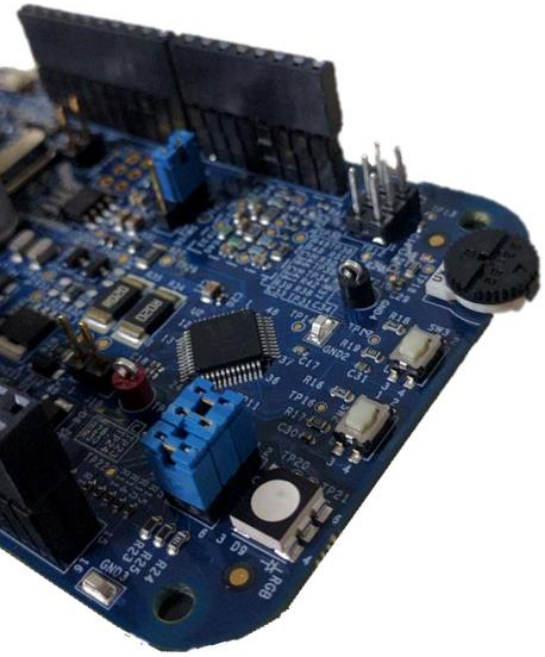
Programming interface and User Peripherals



REFERENCE		MCU PORT	DESCRIPTION
Potentiometer	R20	AN3	Rotary Potentiometer
Push Button	SW1	RESET	Reset button
	SW2	PL0	User button
	SW3	PL1	User button
LED	D3	PWR	VDDX power Indicator
	D2	VSUP	Main power LED indicator
	D8	RESET	RESET LED indicator
	D9	LS2	User RED LED
	RGB	PP1	User GREEN LED
		HS1	User BLUE LED
Programming and Debug Interface	J18		On-board JTAG connection via open source OSBDM circuit using the MC9S08JM60 microcontroller
	J7		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-S12VRP** 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-S12VRP 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 blue LED is blinking.

4

Learn More About the S12VRP

Read the release notes and documentation on the nxp.com/S12VRP.

- 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-S12VRP 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.

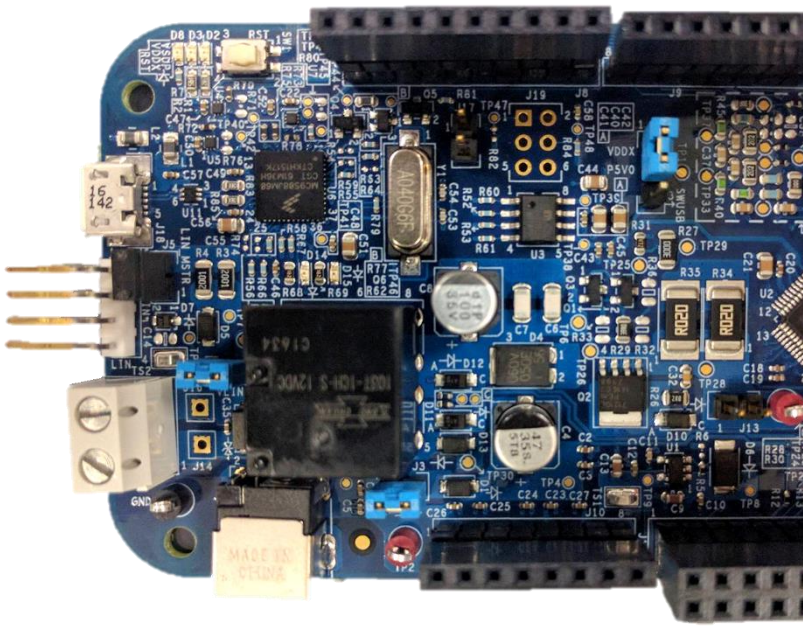
Documentation and References

Application Notes

- AN4643, S12VRP Hardware Design Guidelines
- AN4975: Using MSCAN on the MagniV Family
- AN5122: Using NXP's LIN Driver with the MagniV Family
- AN5328: Comparison between MC9S12VRP, MC 9S12VRP and MM912_634

Reference Manuals

- MC9S12VPR 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

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