DEVKIT-S12G128
QUICK START GUIDE (QSG)

ULTRA-RELIABLE MCUs FOR
INDUSTRIAL AND AUTOMOTIVE



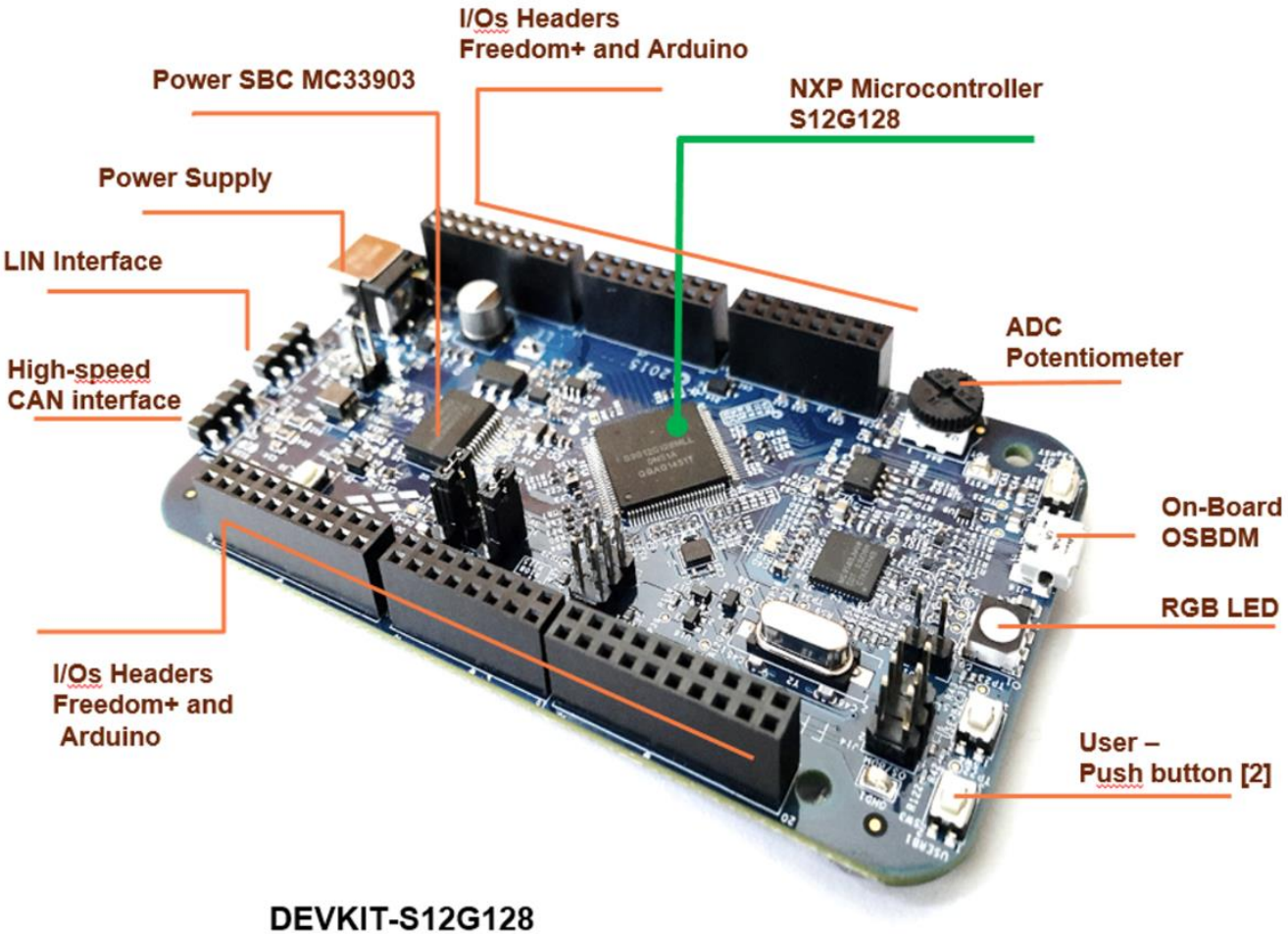
EXTERNAL USE

SECURE CONNECTIONS
FOR A SMARTER WORLD

Get to know the DEVKIT-S12G128

The DEVKIT-S12G128 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.



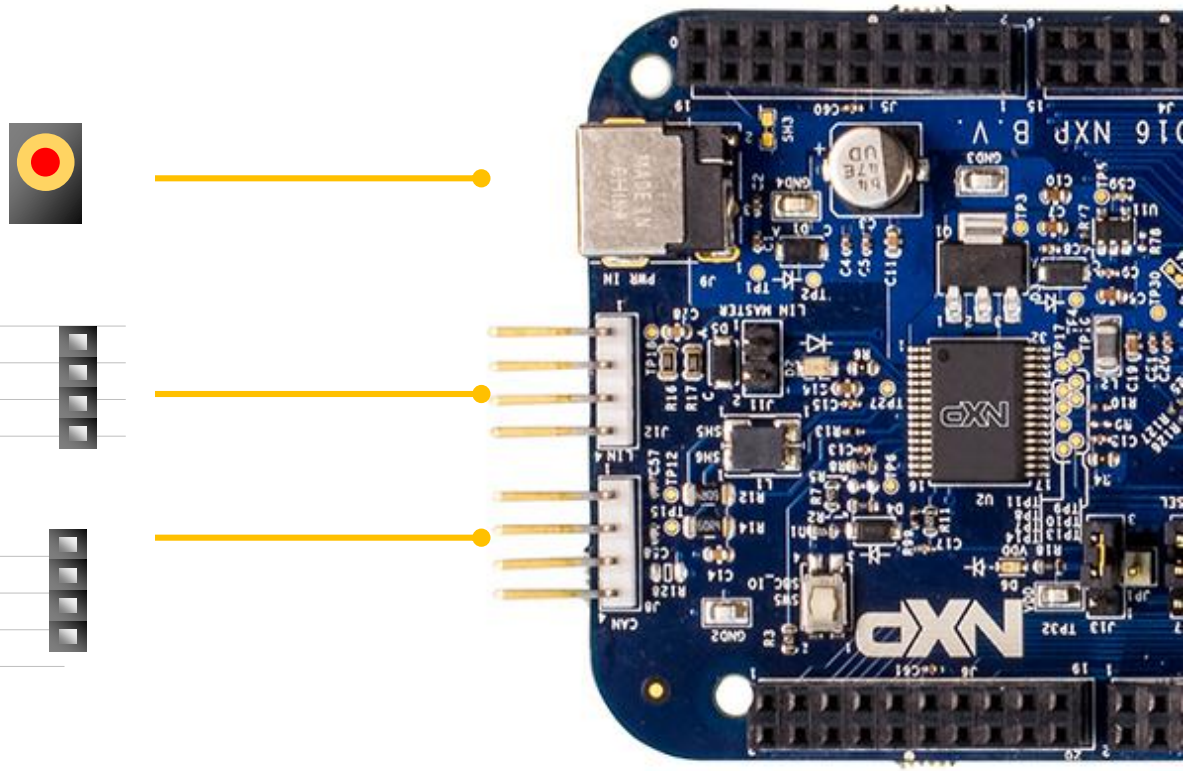
DEVKIT-S12G128
Features

Power Supply and Communications

DESCRIPTION	NAME	PIN
	VBAT	J9-01
	GND	J9-02
	GND	J9-03

DESCRIPTION	NAME	PIN
	LIN	J12-01
	VBAT	J12-02
	NC	J12-03
	GND	J12-04

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



High-speed CAN interface

Input/Output Connectors



Arduino Compatibility
The internal rows of the I/O headers on the DEVKIT-S12G128 are arranged to fulfill Arduino™ shields compatibility .

PIN	PORT	FUNCTION	J1	PIN	PORT	FUNCTION
J1-01	PS0	**RXD0**		J1-02	PA0	**GPIO**
J1-03	PS1	**TXD0**		J1-04	PA1	**GPIO**
J1-05	PP7	**PWM7**		J1-06	PA2	**GPIO**
J1-07	PP6	**PWM6**		J1-08	PA3	**GPIO**
J1-09	PP5	**PWM5**		J1-10	PA4	**GPIO**
J1-11	PP4	**PWM4**		J1-12	PA5	**GPIO**
J1-13	PP3	**PWM3**		J1-14	PA6	**GPIO**
J1-15	PP2	**PWM2**		J1-16	PA7	**GPIO**

PIN	PORT	FUNCTION	J2	PIN	PORT	FUNCTION
J2-01	PP1	**PWM1**		J2-02	PT0	**IOC**
J2-03	PP0	**PWM0**		J2-04	PT1	**IOC**
J2-05	PP5/PJ7	**PWM5 / SPI_SS2**		J2-06	PT2	**IOC**
J2-07	PP2/PJ5	**PWM2 / SPI_M0SI2**		J2-08	PT3	**IOC**
J2-09	PJ4	**SPI_MISO2**		J2-10	PT4	**IOC**
J2-11	PJ6	**SPI_SCK2**		J2-12	PT5	**IOC**
J2-13	GND	**GND**		J2-14	PB0	**GPIO**
J2-15	AREF	**AREF**		J2-16	PB1	**GPIO**
J2-17	PB7	**GPIO**		J2-18	PB2	**GPIO**
J2-19	PB6	**GPIO**		J2-20	PB3	**GPIO**

Input/Output Connectors



Arduino Compatibility
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PIN	PORT	FUNCTION	J3	PIN	PORT	FUNCTION
J3-02	PE1	**XTAL**		J3-01		**VIN**
J3-04	PE0	**EXTAL**		J3-03		**VDD**
J3-06	PS6	**SPI_SCK0**		J3-05		**RESET**
J3-08	PS5	**SPI_M0SI0**		J3-07		**P3V3**
J3-10	PS4	**SPI_MISO0**		J3-09		**P5V0**
J3-12	PS7	**SPI_SS0**		J3-11		**GND**
J3-14	PB4	**GPIO**		J3-13		**GND**
J3-16	PB5	**GPIO**		J3-15		**VIN**

PIN	PORT	FUNCTION	J4	PIN	PORT	FUNCTION
J4-02	PD7	**GPIO**		J4-01	PAD0	**ADC0**
J4-04	PD6	**GPIO**		J4-03	PAD1	**ADC1**
J4-06	PD5	**GPIO**		J4-05	PAD2	**ADC2**
J4-08	PD4	**GPIO**		J4-07	PAD3	**ADC3**
J4-10	PD3	**GPIO**		J4-09	PAD4	**ADC4**
J4-12	PD2	**GPIO**		J4-11	PAD5	**ADC5**
J4-14	PD1	**GPIO**		J4-13	PAD6	**ADC6**
J4-16	PD0	**GPIO**		J4-15	PAD7	**ADC7**

Input/Output Connectors

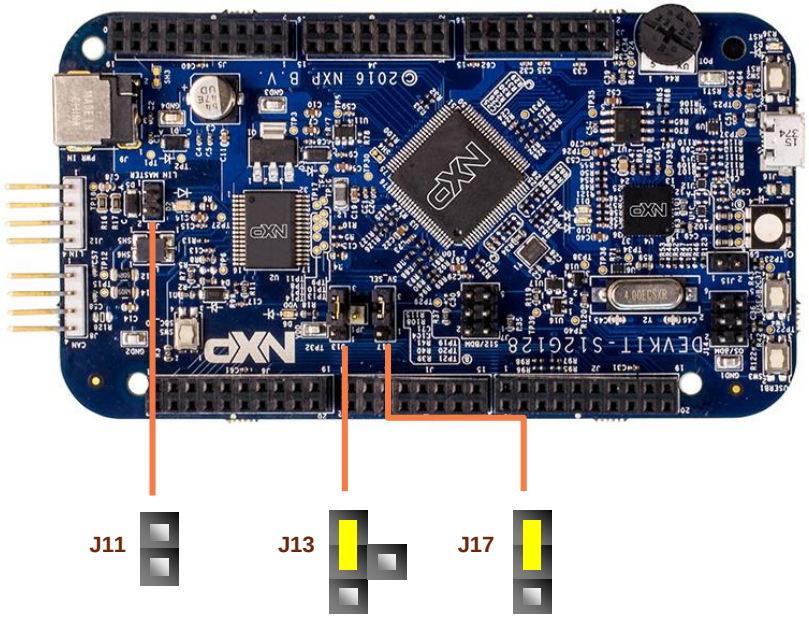


Arduino Compatibility
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PIN	PORT	FUNCTION	J5	PIN	PORT	FUNCTION
J5-02	PC0	**GPIO**		J5-01	PAD8	**ADC8**
J5-04	PC1	**GPIO**		J5-03	PAD9	**ADC9**
J5-06	PC2	**GPIO**		J5-05	PAD10	**ADC10**
J5-08	PC3	**GPIO**		J5-07	PAD11	**ADC11**
J5-10	VDD	**VDD**		J5-09	PAD12	**ADC12**
J5-12	GND	**GND**		J5-11	PAD13	**ADC13**
J5-14	PC4	**GPIO**		J5-13	PAD14	**ADC14**
J5-16	PC5	**GPIO**		J5-15	PAD15	**ADC15**
J5-18	PC6	**GPIO**		J5-17	NC	**NC**
J5-20	PC7	**GPIO**		J5-19		**SBC_SAFE**

PIN	PORT	FUNCTION	J6	PIN	PORT	FUNCTION
J6-19	NC	**NC**		J6-20	NC	**NC**
J6-17	NC	**NC**		J6-18	NC	**NC**
J6-15	PS3	**TXD1**		J6-16	NC	**NC**
J6-13	PS2	**RDX1**		J6-14	NC	**NC**
J6-11	PM3	**LINTX**		J6-12	GND	**GND**
J6-09	PM2	**LINRX**		J6-10	VDD	**VDD**
J6-07	NC	**NC**		J6-08	PM0	**CANRX**
J6-05	NC	**NC**		J6-06	PM1	**CANTX**
J6-03	PJ1	**SPI_MOSI**		J6-04	PJ3	**SPI_CS**
J6-01	PJ2	**SPI_SCK**		J6-02	PJ0	**SPI_MISO**

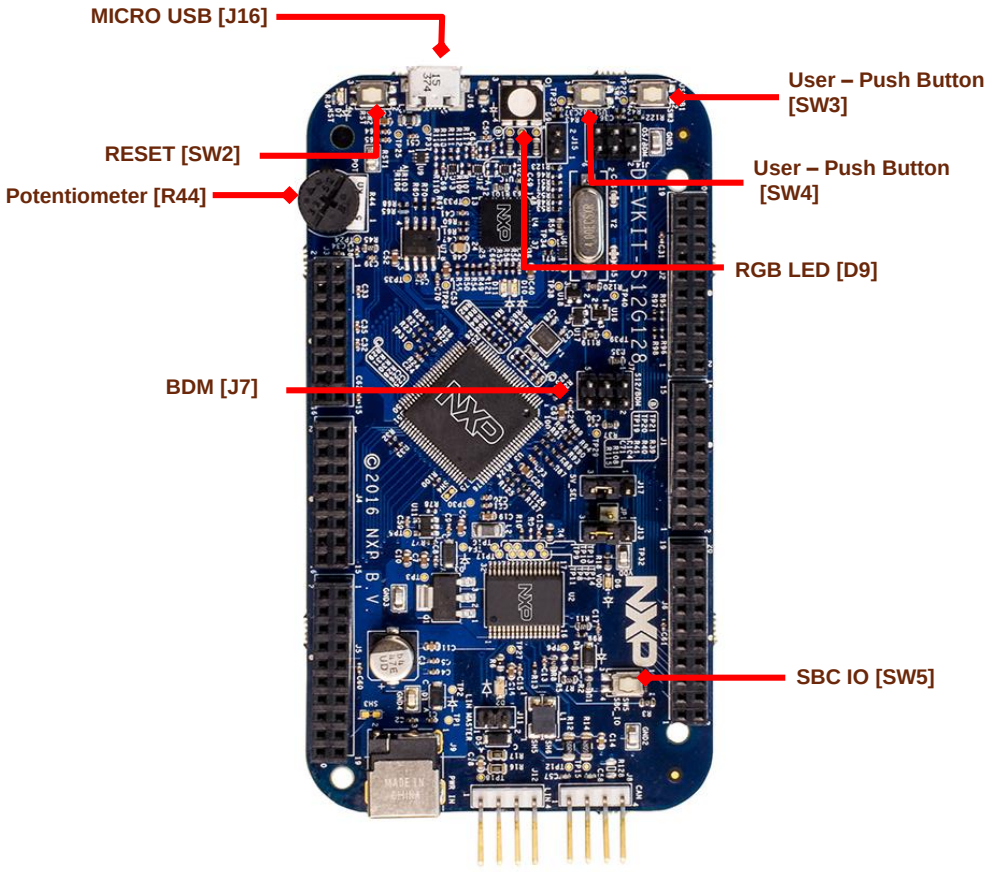
Default jumpers



REF	POSITION	DESCRIPTION
J11	OPEN	Enable LIN Master mode
J13	1 - 2	VDD Power MCU linked to 3.3V
	2 – 3 [DEFAULT]	VDD Power MCU linked to 5.0V
	2 - JP1	VDD Power MCU linked to USB
J17	1 - 2	P5V0 reference is linked to P5V_SWUSB
	2 – 3 [DEFAULT]	P5V0 reference is linked to P5V_SBC

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.

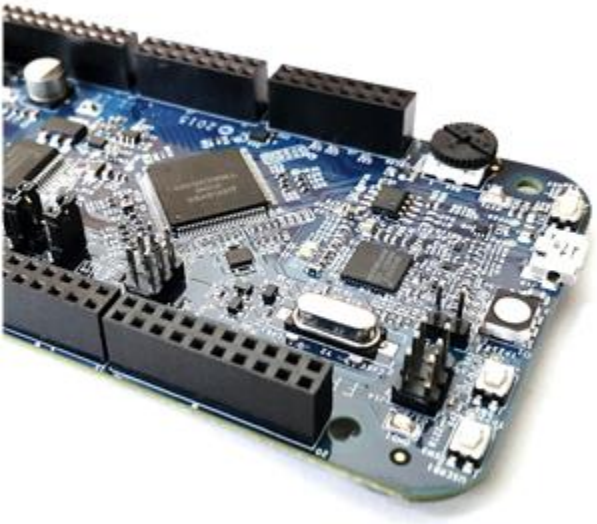
Programming interface and User Peripherals



REFERENCE		MCU PORT	DESCRIPTION
Potentiometer	R44	AN0	Rotary Potentiometer
Push Button	SW5	PWRSBC	
	SW2	RESET	
	SW3	PT6	
	SW4	PT7	
LED	D6	PWRSBC	GREEN LED power Indicator
	D7	RESET	RESET LED indicator
	D9	PP3	User LED
	RGB	PP4	User LED
		PP6	User LED
Programming and Debug Interface	J16		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-S12G128** 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-S12G128 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 S12G128

Read the release notes and documentation on the nxp.com/S12G128.

- 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-S12G128 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

Datasheet

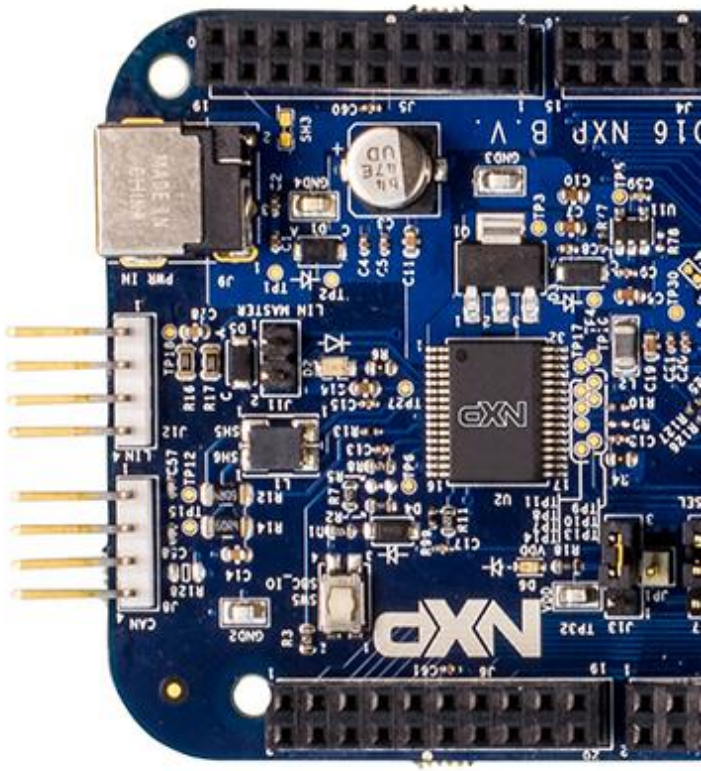
- MC9S12GRMV1, MC9S12G Family Reference Manual and Data Sheet (REV 1.25)

Application Notes

- AN4455, MC9S12G128/A240 Demonstration Lab Training - Application Notes (REV 0)

Reference Manuals

- DRM134, DRM for Driver Information System on S12G128 - Reference Manual (REV 0)



For more information please visit : www.nxp.com/s12g

Development Tools Ecosystem

Compilers
- Codewarrior S12
- 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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