# Quick Start Guide

## STMicroelectronics STM32F446RE NUCLEO-64 Board





#### Install Keil MDK Version 5

• Download and install the MDK Core from

www.keil.com/mdk5/install

Add Software Pack using the Pack Installer

- Keil::STM32F4xx\_DFP STMicroelectronics STM32F4 Series Device Support
- Keil::STM32NUCLEO\_BSP STMicroelectronics NUCLEO Board Support

#### Power up the board

- Do **not** connect the board to the PC! Go to C:\Keil\_v5\ARM\STLink\USBDriver and double-click **stlink\_winusb\_install.bat** to install the drivers for the on-board USB ST-Link/V2.
- Connect a USB power supply **USB ST-Link/V2** port to the computer using a Mini USB cable. Windows recognizes the ST-Link/V2 device and installs the drivers automatically.

#### **Verify Installation** using example projects provided in the Software Pack

• Copy an example using the Pack Installer. Compile, download to Flash, and debug the application. The provided examples are ready to run.

#### **More Information**

- Getting Started User's Guide
- Board Information

#### **Related Products**

- MDK Version 5
- MDK-Professional Middleware

www.keil.com/gsg http://www.keil.com/boards2/st/nucleo\_f446re

www.keil.com/mdk5 www.keil.com/mdk5/middleware

# Debug and Trace Configuration

### STMicroelectronics STM32F446RE NUCLEO-64 Board



#### Enable ST-Link Debugger

Select **Options for Target** or press **ALT+F7**. Go to the **Debug** tab and select the **ST-Link Debugger**.

#### Connect Using SWD

Click on the **Settings** button. On the **Debug** tab select the Port **SW**. This board does not support JTAG.

Linker	Debug	Utilities		
Use	: ST-Lir	nk Debugger	-	Settings

Debug Trace Flash Download				
Debug Adapter Unit: ST-LINK/V2-1				
Serial Number:				
HW Version: V2-1				
FW Version: V2J24M10				
Port: SW				
Max Clock: 4MHz 💌				

#### **Configure Trace using Serial Wire Viewer**

Go to the **Trace** tab and enter the correct CPU **Core Clock** speed as specified in your project. Check the **Trace Enable** box.

When debugging, the Status bar shows information about the Trace connection.

Cortex-M Target Driver Setup				
Debug Trace Rash Download				
Core Clock: 100.000000 MHz   Trace Enable				
Trace Port       Timestamps       Trace Events         Serial Wire Output - UART/NRZ ▼       Imestamps       Imestamps         SWO Clock Prescaler: 50       Imestamps       Imestamps         Imestamps       Imestamps       Imestamps         PC Sampling       Prescaler: 1024*16 ▼       Imestamps         SWO Clock:       2.000000 MHz       Periodic Period:        Imestamps         Imestamps       Imestamps       Imestamps       Imestamps         PC Sampling       Imestamps       Imestamps       Imestamps         Prescaler: 1024*16 ▼       Imestamps       Imestamps       Imestamps         Imestamps       Imestamps				
ITM Stimulus Ports       31       Port       24       23       Port       16       15       Port       8       7       Port       0         Enable:       0x80000001       Image:       0x00000008       Port       3124       Port       2316       Port       158       Port       70         Advanced settings       Image:       Ignore packets with no SYNC       Overwrite CYCCNT       Overwrite CYCCNT				
OK Cancel Apply				