Evaluation Board Getting Started

TLE984x_EVB_1.3

Agenda

1. TLE984x Evalboard overview
2. Product Information links
3. Toolchain installation
4. Getting Started

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Agenda

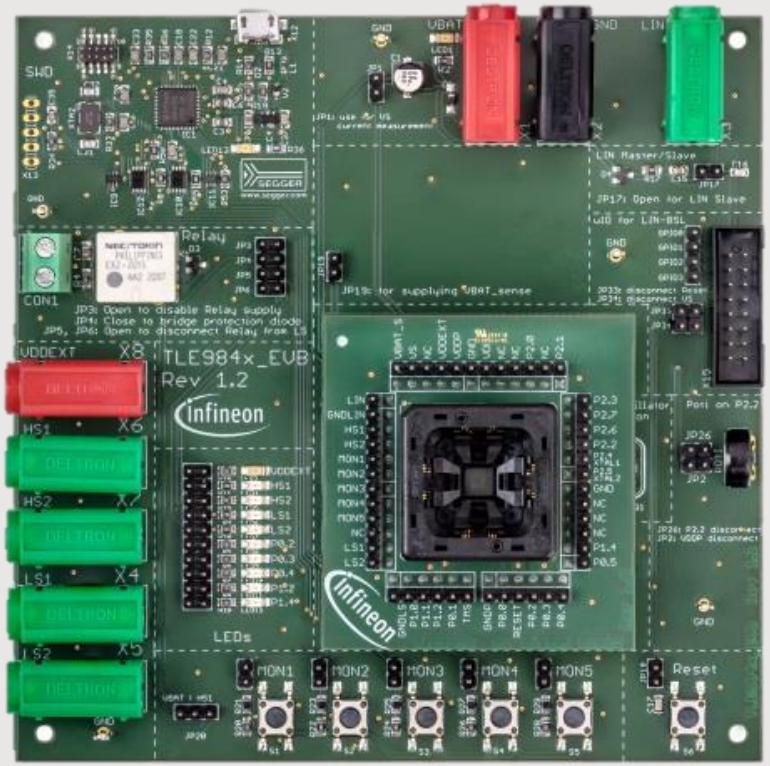
1. TLE984x Evalboard overview
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4. Getting Started

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Infineon® Embedded Power IC: TLE984xQX Evaluation Board

TLE984xQX Evaluation Board with Socket

- Double-Relay, for DC-Motor connection
- onboard Segger J-Link Debugger
- Debug connector SWD
- Micro-USB-connection for Debugger
  also usable for UART (virtual COM port)
- Debug LEDs
- 5 MON buttons
- Potentiometer, e.g. for ADC test
- uIO Stick connector
- TLE984X EVALBOARD **SP001297468**



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Product Information links

Link	Description
www.infineon.com/embeddedpower	Infineon® Embedded Power IC overview Page
TLE984xQX_Overview	TLE984xQX Overview Page with general information
TLE984xQX_Documents	Datasheets and User Manuals for TLE9842QX, TLE9844QX, TLE9842-2QX, TLE9843-2QX, TLE9844-2QX,
Evalboard_overview	Development Tools: Kits and Boards for all Infineon® Embedded Power ICs
TLE984x_Evaluation_Board	Information about TLE984x_EVB_V1.2

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Toolchain installation: 1/4

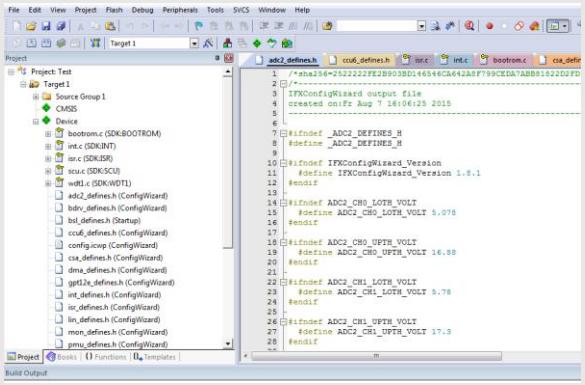
Keil µVision5

- Code Editor & Online Debugger
- Evaluation version can handle up to 32K

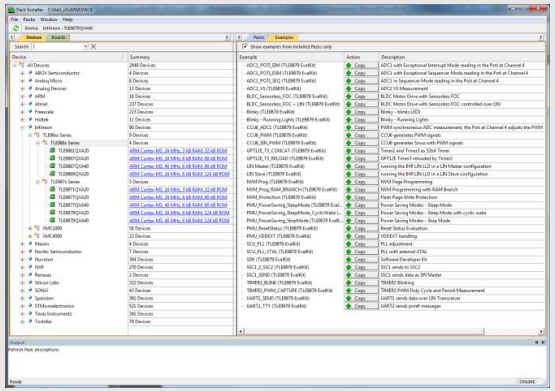
- Download from: https://www.keil.com/download



Main Window



Pack Installer



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Toolchain installation: 2/4

Infineon **IFXConfigWizard**

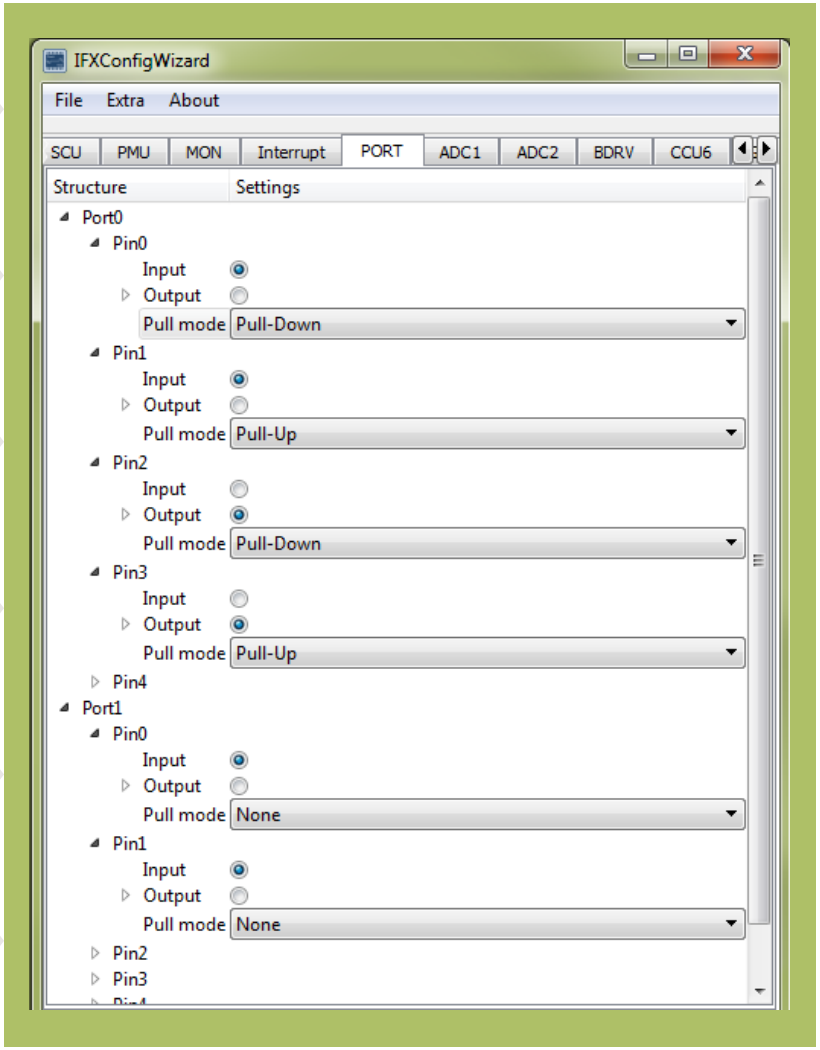
Configuration of chip modules

Infineon homepage: IFXConfigWizard

Latest version: V1.8.6

Device description for TLE986x/TLE987x included

TLE984x supported with Keil µVision 5

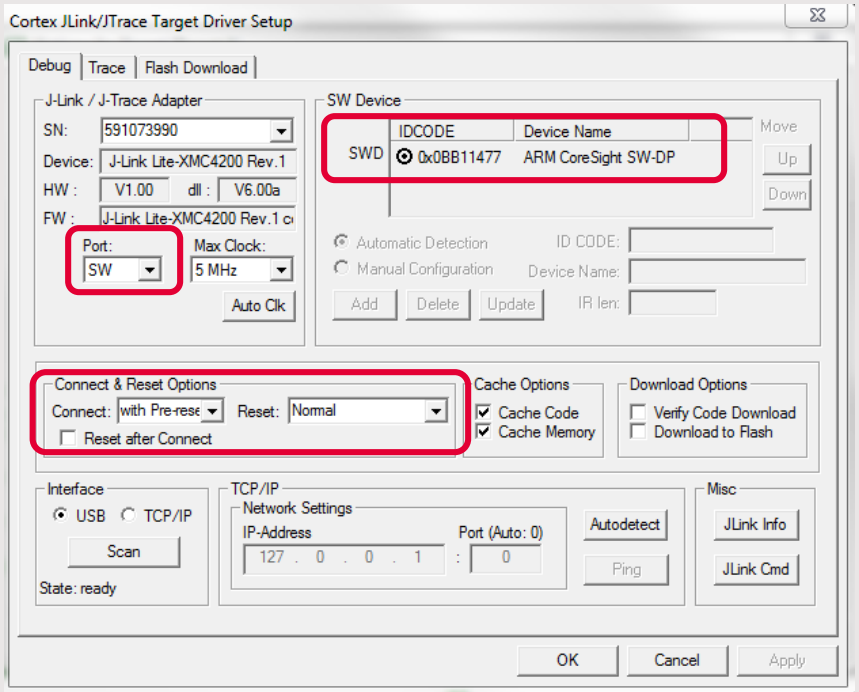


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Toolchain installation: 3/4

Segger JLINK-Lite driver:

- Driver for “on-board” or “stand-alone” debugger
- Install driver from: https://www.segger.com/jlink-software.html
- TLE984x support is included from V5.10 upwards

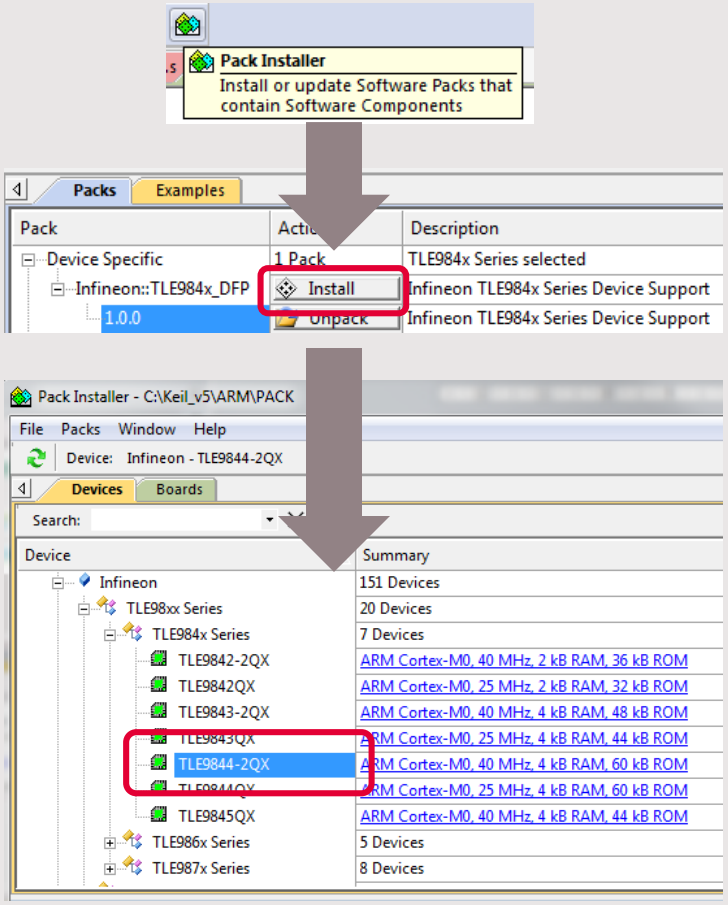


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Toolchain installation: 4/4

PACK-file TLE984x for µVision5:

- Device database for all TLE984x variants
- Device support for flashing/erasing TLE984x
- SFR description for register debugging
- Device description for TLE984x for Config Wizard (XML)
- Includes SDK (Software Development Kit)
- Code examples included



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Getting Started: Infineon ePower SDK

Keil µVision5 Template

- Creating new project with Infineon SDK
- Writing code

Infineon Config Wizard

- Initialize modules
- Timers
- GPIOs

J-Link Configuration

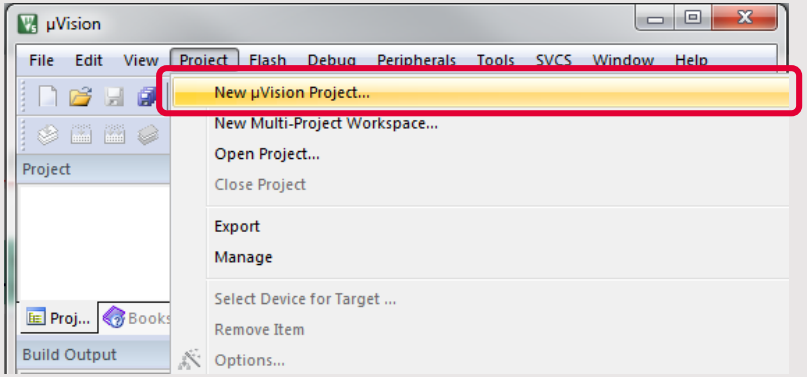
- Connect device
- Program flash
- Using debug window

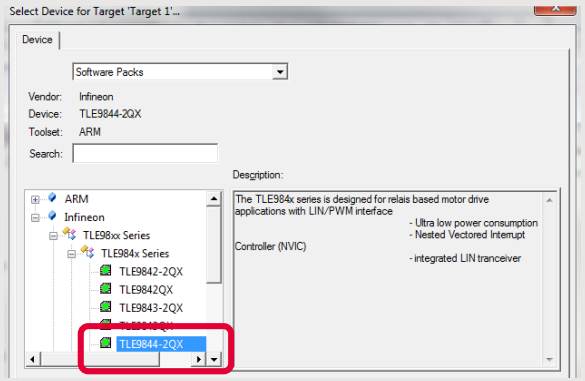
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Getting Started: Infineon ePower SDK Keil µVision5 Template

1) Create new Project

- Open Keil mdk
- Go to ->Project ->new µVision Project
- Name project: (“TIMER2_BLINK”)
- Select Device
  - i.e. TLE9844-2QX



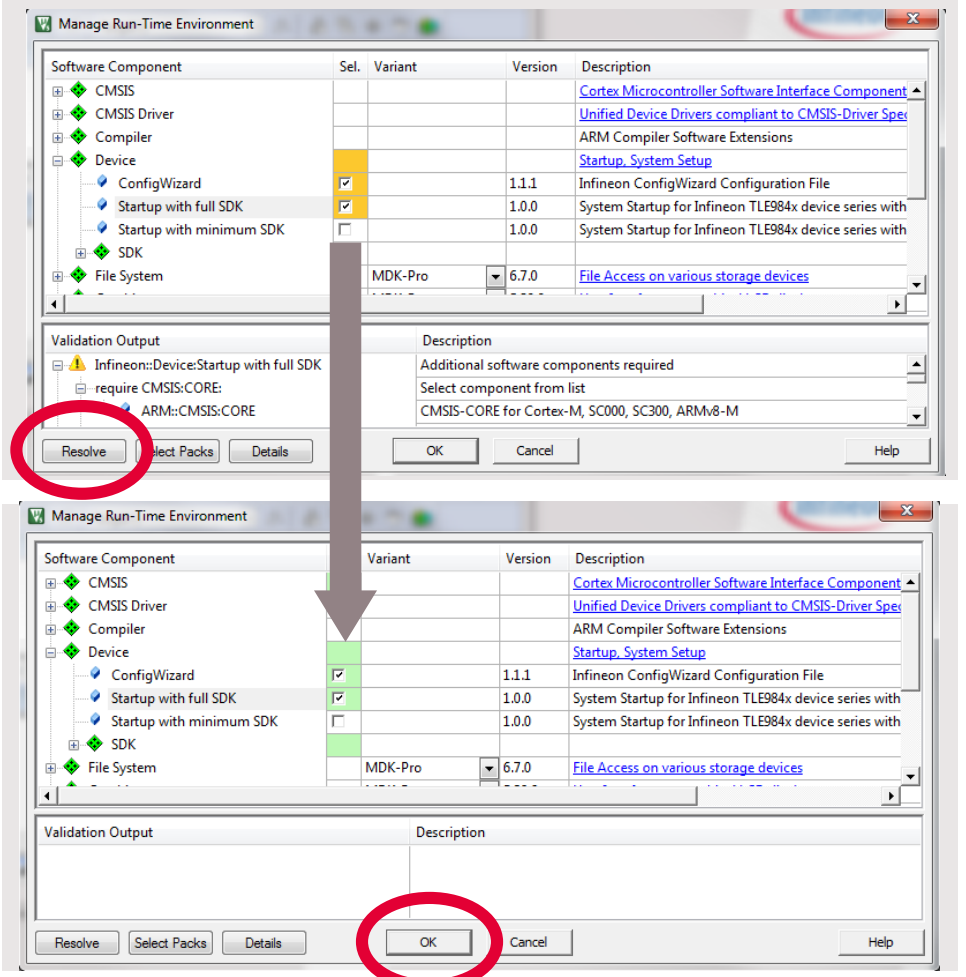


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Getting Started: Infineon ePower SDK Keil µVision5 Template

2) Configuration of Run-Time Environment

- Expand: “Device”
  - Check: Config Wizard
  - Check: Startup with full SDK
- “Sel.” window background is **orange**
- Press: “Resolve”
- “Sel.” window background is now **green**
- Continue with “OK”

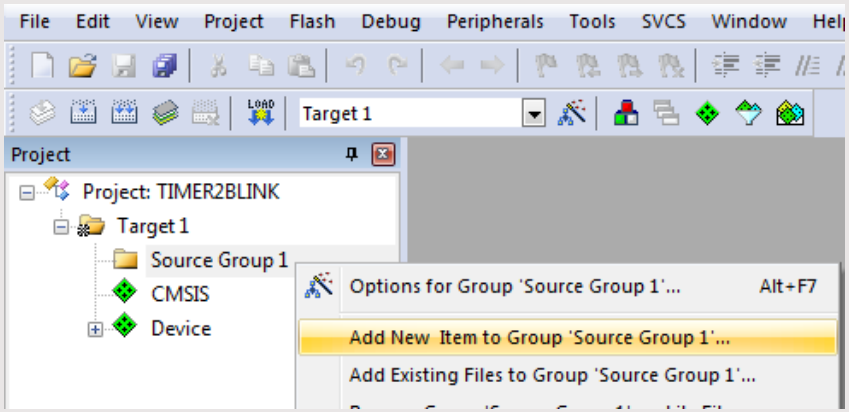


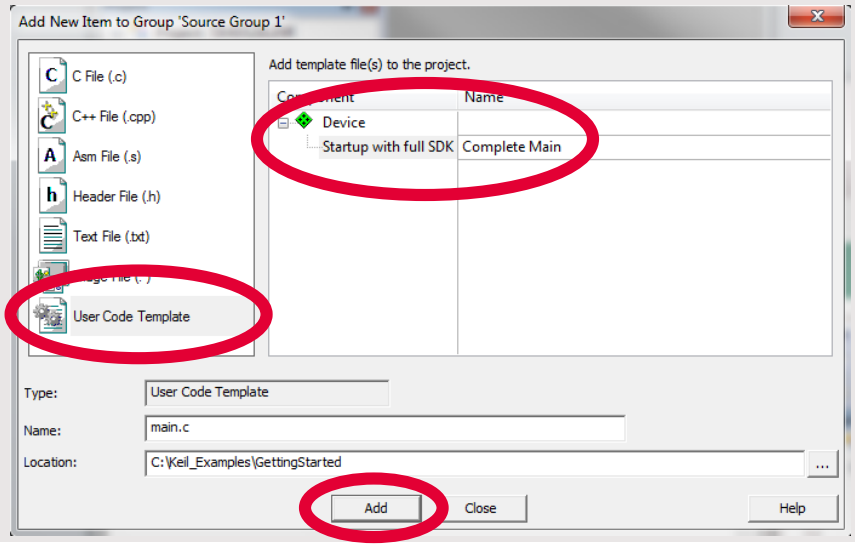
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Getting Started: Infineon ePower SDK Keil µVision5 Template

3) Using easy "Main" template

- Expand: "Target 1"
- Right click on: "Source Group 1"
- Choose "Add New Item to Group 'Source Group 1'"
- Choose "User Code Template"
- Expand "Device"
- Choose: "Startup with full SDK"
- Continue with "Add"



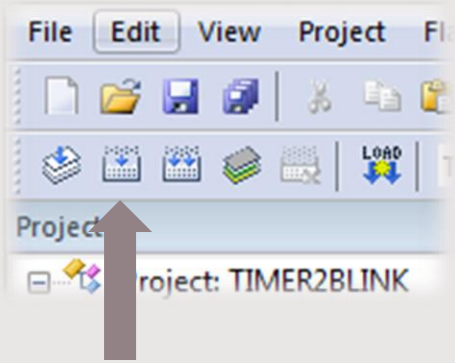


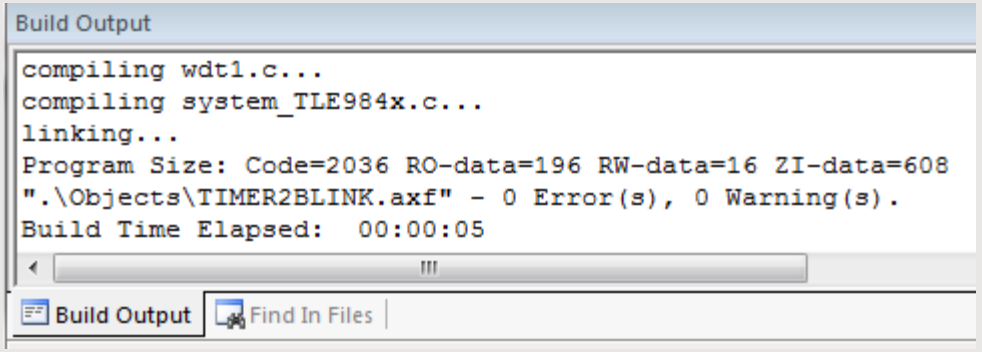
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Getting Started: Infineon ePower SDK Keil µVision5 Template

4) Compile Project

- Compile Project:
  - Press “Build” Button or press “F7”
- Project “Build Output” window shows 0 Error(s) , 0 Warning(s)



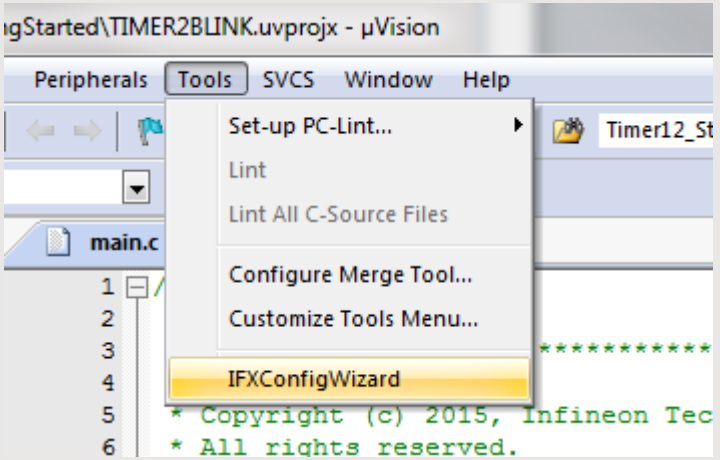


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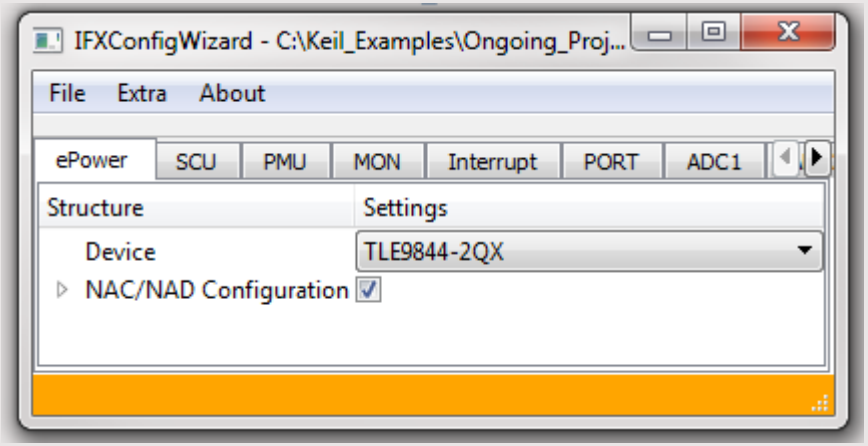
Getting Started: Infineon ePower SDK Keil µVision5 Template

5) Using IFXConfigWizard

- Open IFXConfigWizard by choosing: "Tools->IFXConfigWizard"
- IFXConfigWizard will open in a separate window



- **orange** status bar indicates an new project
- **red** status bar indicates unsaved changes
- **white** status bar indicates saved project

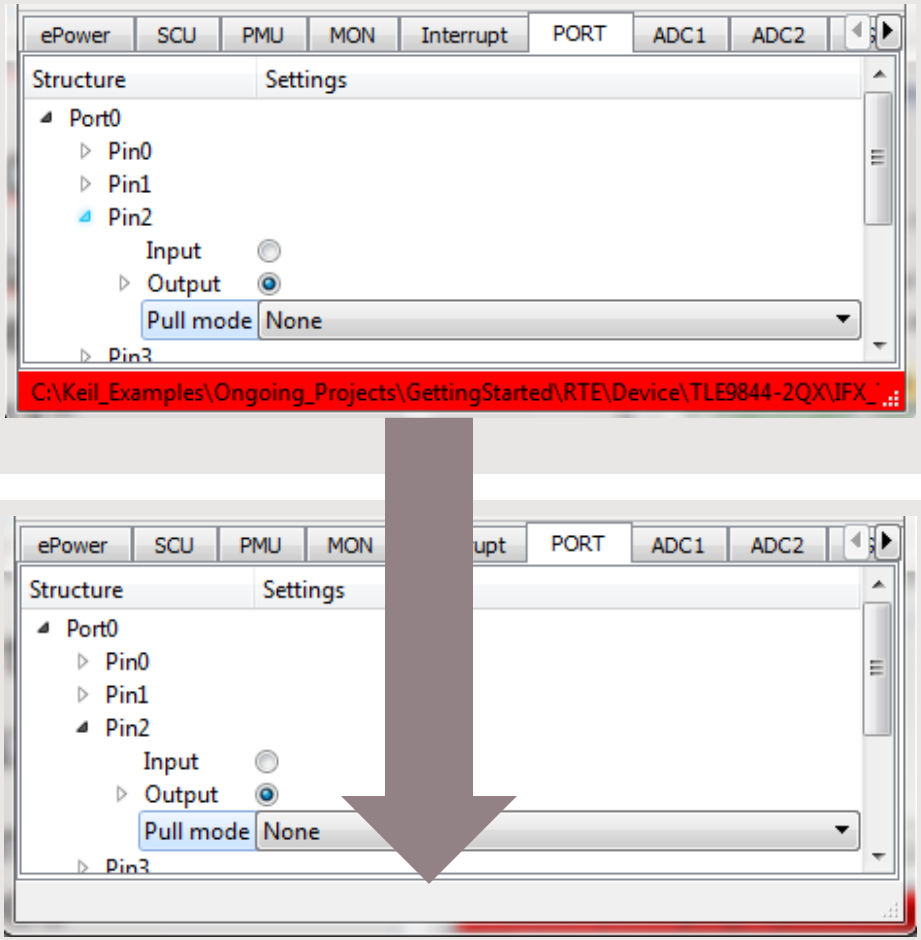


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Getting Started: Infineon ePower SDK Keil µVision5 Template

5) Using IFXConfigWizard: Port Configuration

- Select: “PORT” Chapter
- Expand “Port0”
- Expand “PIN2”
- Configure pin to “Output” mode
- Save with “File” -> “Save Project”
- After Saving, status bar turns to **white** color

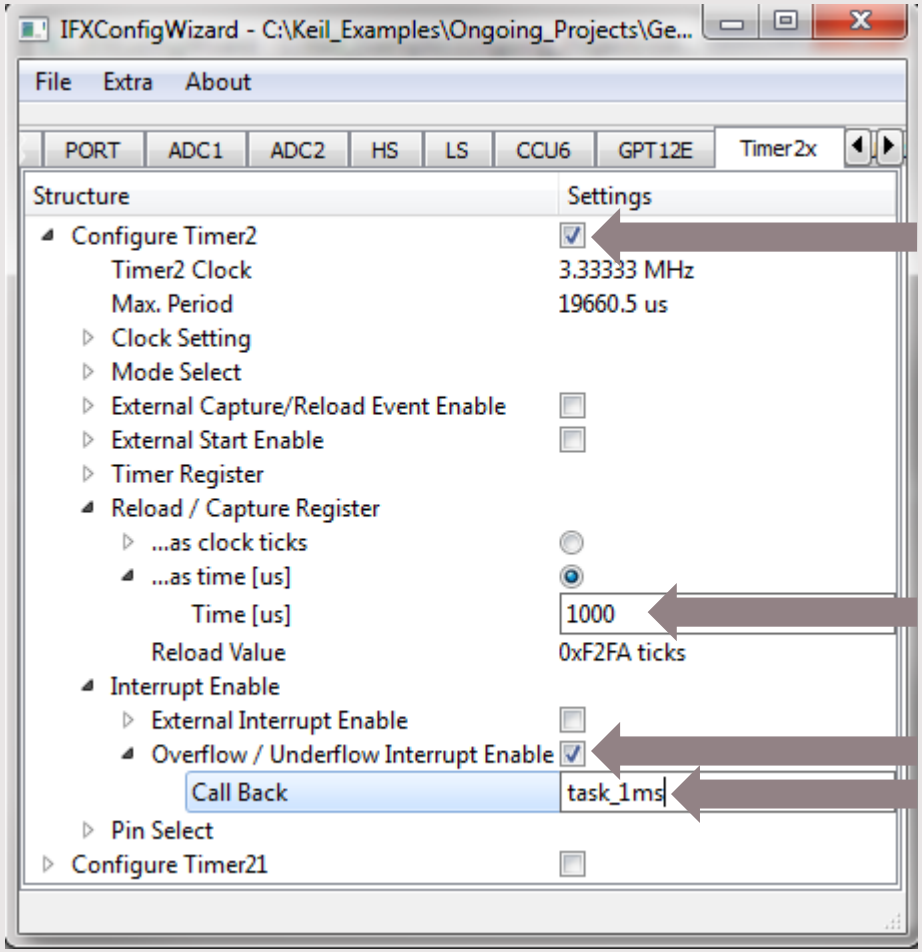


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Getting Started: Infineon ePower SDK Keil µVision5 Template

5) Using IFXConfigWizard: Timer2 Configuration

- Open "Timer 2x" section
- Enable "Configure Timer" checkbox
- Go to "Reload / Capture Register"
  - Enter 1000 µs
- Go to "Interrupt Enable"
  - Enable Overflow Interrupt
  - Type "task_1ms" in "Call Back" line
- Press "Enter" and "Save"

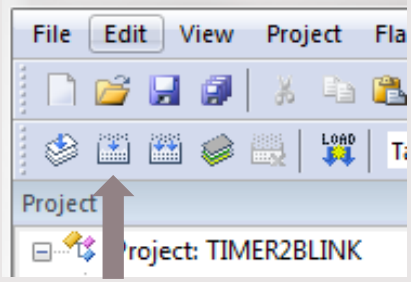


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Getting Started: Infineon ePower SDK Keil µVision5 Template

6) Finish Code in “main.c”

- Go to Keil MDK
- Start Timer2 before the “while(1)” loop
- Write function definiton of Interrupt call back
- Use API function “PORT_ChangePin()”
- “Save” and “Build” project




```
119   /*****************************************
120   ** place your application code here
121   *****************************************
122   TIMER2_Start();
123   /*****************************************
124   ** main endless loop
125   *****************************************
126  /*lint -e716 info while(1) ... */ \
127  /*lint -e9036 Supressing MISRA 2012 Rule 14.4
128    while (1)
129  /*lint -e9036 */
130  /*lint -e716 */
131   {
```

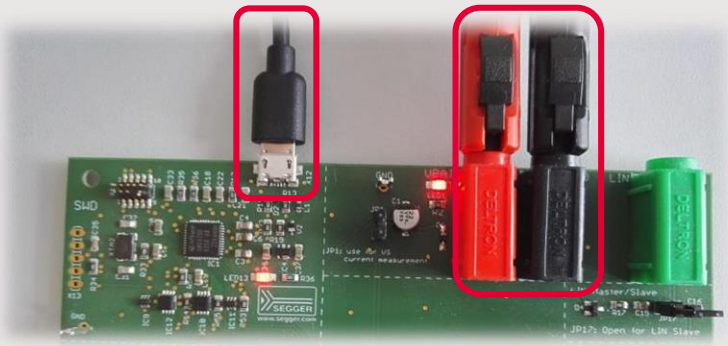
```
146 /*****************************************
147 **                    Private Function Defi
148 *****************************************
149  void task_1ms(void)
150 {
151    PORT_ChangePin(0x02,PORT_ACTION_TOGGLE);
152 }
153
```


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Getting Started: Infineon ePower SDK Keil µVision5 Template

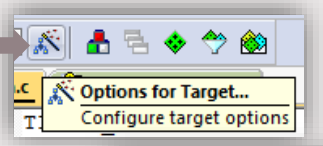
7) Power up Evaluationboard

- Connect micro USB cable
- Supply board via banana jacks (VBAT, GND)
- Debug LED and VBAT LED light up

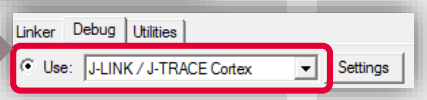


8) Connect Debugger

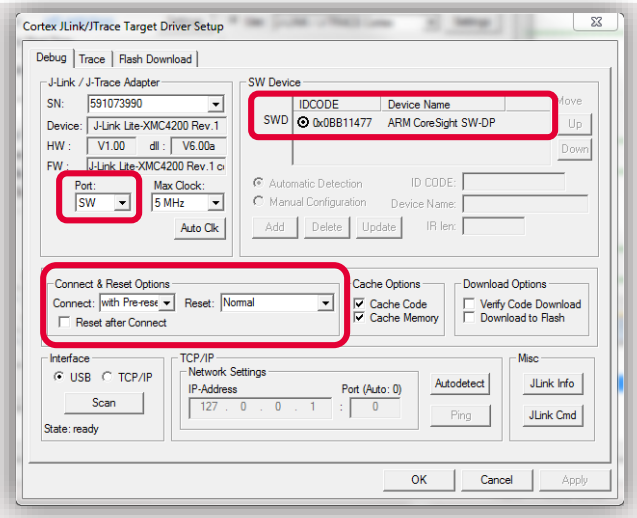
- Go to



- Choose:
  - Debug->use: J-Link



  - Go to Settings



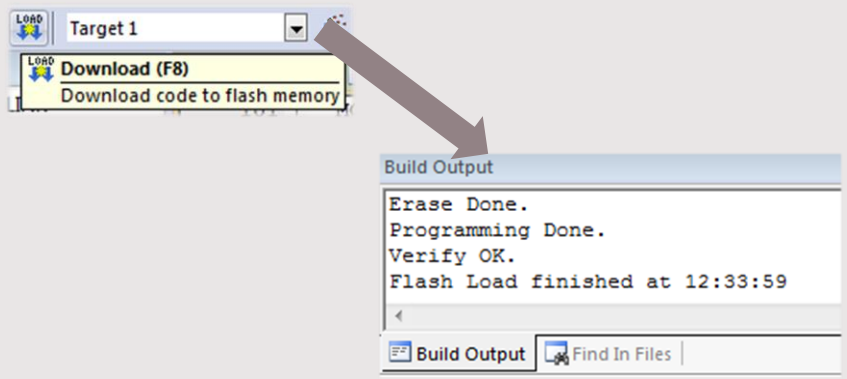
- SWD connection established when “IDCODE” is visible

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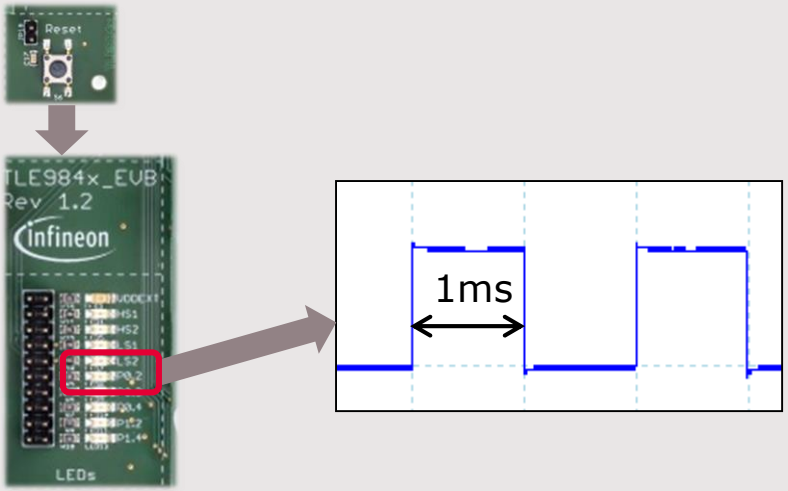
Getting Started: Infineon ePower SDK Keil µVision5 Template

9) Download and run code

- Press: “Load”- button or Press: “F8”
- “Flash Load finished” is shown in “Build Output” window



- Press: “Reset” button on Evaluation Board
- LED on Port “P0.2” will light up
- Port toggle every 1ms

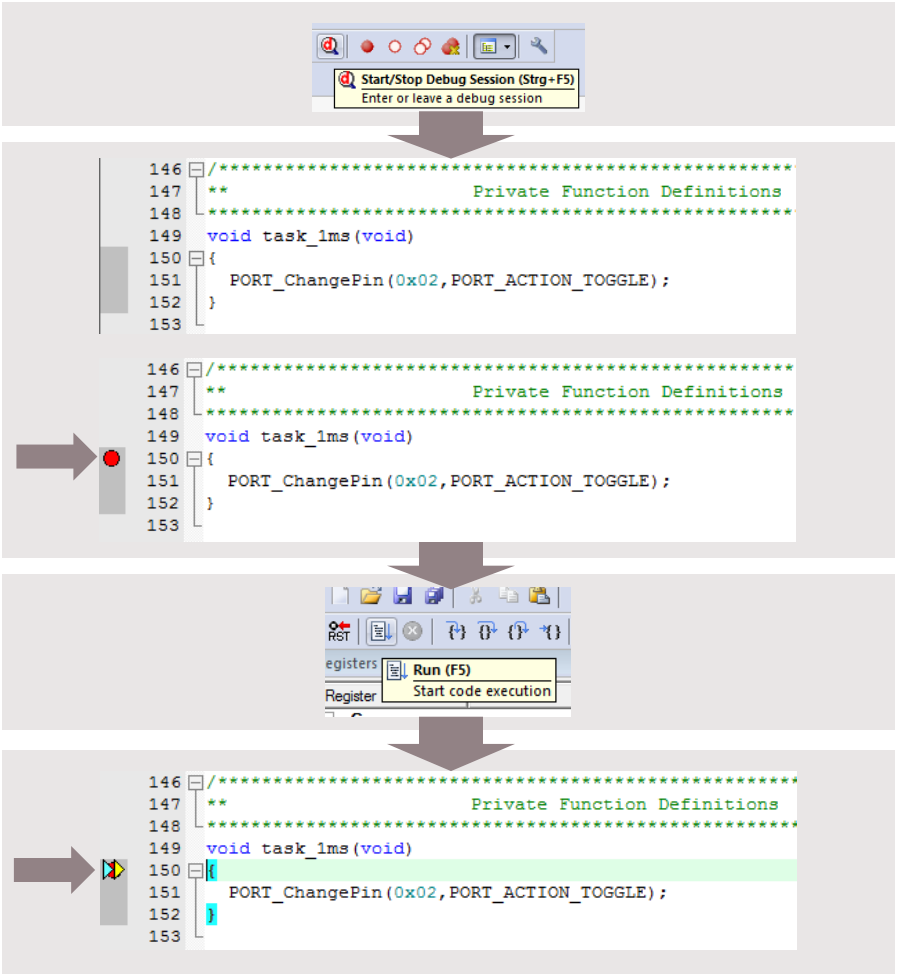


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Getting Started: Infineon ePower SDK Keil µVision5 Template

10) Use Runtime Debug

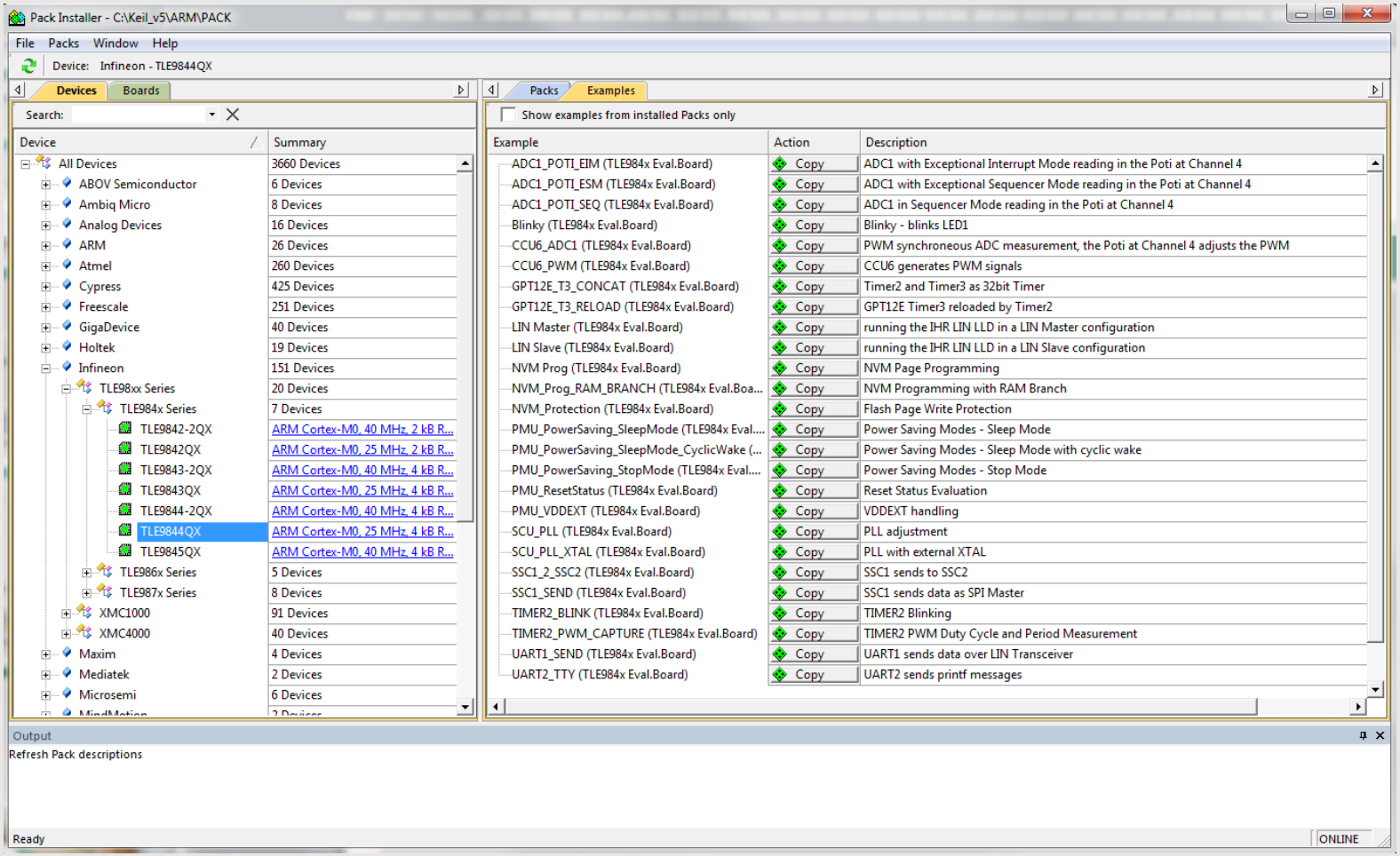
- Enter “Debug Session”
- Left click at the dark grey area left of the code, to place a “breakpoint”
- Hit “Run” or press “F5” to start execution
- Code execution stops at breakpoint
- In this example:
  - Every time “Run” is pressed: “P0.2” toggles



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Getting Started: Infineon ePower SDK Example Code

Infineon Example Code available in “Pack Installer”



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