



NuTiny-SDK- NUC472 User Manual

for NuMicro™ NUC472 Series

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1 Overview

The NuTiny-SDK-NUC472 is a specific development tool for NuMicro™ NUC472 series. User can use NuTiny-SDK-NUC472 to develop and verify the application program easily. The NuTiny-SDK-NUC472 includes two parts: NuTiny-EVB-NUC472 and Nu-Link-Me. The NuTiny-EVB-NUC472 is the evaluation board and Nu-Link-Me is its Debug Adaptor. Therefore, user does not need other additional ICE or debug equipment.

2 Introduction to NuTiny-SDK-NUC472

The NuTiny-SDK-NUC472 uses the NUC472HI8AE as the target microcontroller. Figure 2-1 shows the NuTiny-SDK-NUC472 for NUC472 series, in which the left portion is called NuTiny-EVB-NUC472 and the right portion is called Nu-Link-Me.

The NuTiny-EVB-NUC472 is similar to other development boards. User can use it to develop and verify applications to emulate the real behavior. The on-board chip covers NUC472 series features. The NuTiny-EVB-NUC472 can be a real system controller to design user's target systems.

The Nu-Link-Me is a Debug Adaptor, which connects your PC's USB port to your target system (via Serial Wired Debug port) and allows you to program and debug embedded programs on the target hardware. To use the Nu-Link-Me Debug Adaptor with IAR or Keil, please refer to the "Nuvoton NuMicro™ IAR ICE Driver User Manual" or "Nuvoton NuMicro™ Keil ICE Driver User Manual" for details. The two documents will be stored in the local hard disk when each driver is installed.

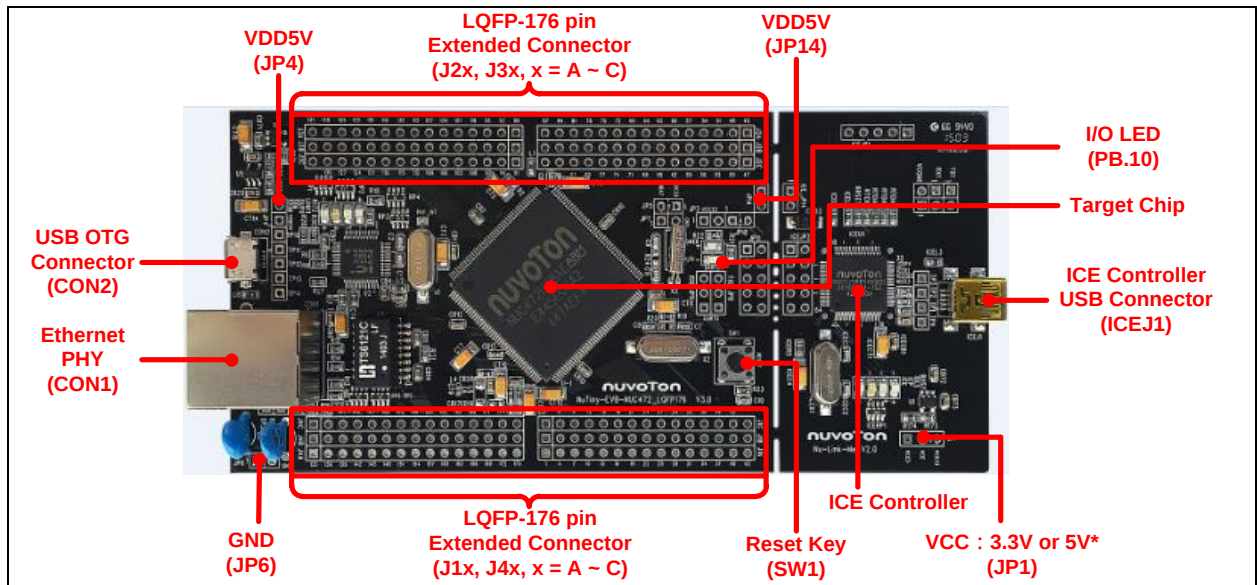


Figure 2-1 NuTiny-SDK-NUC472 (Black PCB Board)

* NOTE: Make sure the VCC (JP1) is shorted on VCC33 (default), and don't change it to protect all the Ethernet 3.3V devices in the NuTiny-EVB-NUC472 when debugging this target NUC472 system via this Nu-Link-Me board.



2.1 NuTiny-SDK-NUC472 Jumper Description

2.1.1 Power Settings

- **ICEJ1**: USB port in Nu-Link-Me
- **CON2**: USB port in NuTiny-EVB-NUC472
- **JP4/JP14**: VDD5V voltage connector in NuTiny-EVB-NUC472

POWER Mode	ICEJ1 USB Port (Mini)	CON2 USB Port (Micro)	JP4/JP14 VDD5V	MCU Voltage	Comment
Mode 1	Connected to PC	X	DC 5V Output	DC 3.3 V	ICEJ1 (from PC) supplies the power.
Mode 2	X	Connect to PC (USB port is device)	DC 5V Output	DC 3.3 V	CON2 (from PC) supplies the power when TP10 is wired to JP4 or JP14.
Mode 3	X	Connect to PC (USB port is host)	DC 5V Input	DC 3.3V	JP4 or JP14 supplies the power.

X: Unused.

2.1.2 Debug Connectors

- **JP11**: The connector in the target board (NuTiny-EVB-NUC472) for connecting with Nuvoton ICE adaptor (Nu-Link, Nu-Link-Pro or Nu-Link-Me)
- **ICEJP2**: The connector in the ICE adaptor (Nu-Link-Me) for connecting with a target board (e.g. NuTiny-EVB-NUC472)

2.1.3 USB Connector

- **ICEJ1**: Mini USB connector in Nu-Link-Me connected to a PC USB port

2.1.4 USB OTG Host/Device Connector

- **CON2**: Micro USB connector in NuTiny-EVB-NUC472 for application use

2.1.5 Extended Connectors

- **J1x, J2x, J3x and J4x (x = A ~ C)** : Show all chip pins in NuTiny-EVB-NUC472

2.1.6 Reset Button

- **SW1**: Reset button in NuTiny-EVB-NUC472. Press this key to reset the target chip NUC472HI8AE.



2.1.7 Power Connectors

- **JP3:** VCC33 connector in NuTiny-EVB-NUC472 to supply the 3.3V voltage input to target board
- **JP10:** An option to select whether the 3.3V voltage input supplied by the ICE bridge (default)
- **VBAT:** The VBAT connector in NuTiny-EVB-NUC472 to supply an extra battery power. The default is shorted with VCC33.
- **JP4/JP14:** VDD5V connector in NuTiny-EVB-NUC472 to supply 5V voltage input from an extra power supplier.
- **JP6:** GND connector in NuTiny-EVB-NUC472

2.1.8 10/100 Mbps Fast Ethernet PHY

- **CON1:** Ethernet connector in NuTiny-EVB-NUC472 for application use.



2.2 Pin Assignment for Extended Connectors

The NuTiny-EVB-NUC472 provides the NUC472HI8AE target chip on board and the extended connectors **J1x**, **J2x**, **J3x**, and **J4x** (x = A ~ C) for LQFP 176-pin.

No	Pin Name	No	Pin Name
1	PE.12/ADC1_4/ACMP1_P3/ACMP2_P2/EBI_ncs1/HS	21	PD.0/SPI1_MISO0/SC4_CLK/SD1_DAT2/CAP_DATA3/EBI_A4/INT3/HS
2	PE.13/ADC1_5/ACMP2_P1/EBI_nCS2/HS	22	PD.1/SPI1_CLK/TM0_CNT_OUT/SD1_DAT1/CAP_DATA2/EBI_A5/HS
3	PE.14/ADC1_6/ACMP2_P0/EBI_nCS3/HS	23	PD.2/STADC/I2C3_SCL/SD1_DAT0/CAP_DATA1/EBI_A6/HS
4	PE.15/ADC1_7/ACMP2_N	24	PH.11/UART3_RXD
5	PF.9/OPA0_IN+/PWM0_0/HS	25	PH.12/UART3_TXD
6	PF.10/OPA0_IN-/PWM0_1/HS	26	PH.13/UART3_RTS
7	PF.11/OPA0_O/UART1_RTS	27	PH.14/UART3_CTS
8	PF.12/OPA1_IN+/UART1_CTS	28	PD.3/SC5_CLK/I2C3_SDA/ACMP2_O/SD0_CDn/CAP_DATA0/EBI_A7/HS
9	PF.13/OPA1_IN-/UART1_TXD	29	PD.4/SC5_CD/UART3_RXD/ACMP1_O/CAP_SCLK/EBI_A8/HS
10	PF.14/OPA1_O/UART1_RXD	30	PD.5/SC5_RST/UART3_TXD/CAP_VSYNC/EBI_A9/HS
11	VSS	31	PD.6/SC5_PWR/UART3_RTS/SD0_CMD/CAP_HSYNC/EBI_A10/HS
12	VDD	32	PD.7/SC5_DAT/UART3_CTS/SD0_CLK/CAP_PIXCLK/EBI_A11/HS
13	PF.15/UART0_RTS	33	PH.15/SC5_CLK
14	PG.0/UART0_CTS/INT6	34	PI.0/SC5_RST
15	PG.1/UART0_RXD	35	PI.1/SC5_PWR
16	PG.2/UART0_TXD	36	PI.2/SC5_DAT
17	PC.12/SPI1_SS0/SC4_CD/SD1_CDn/CAP_DATA7/EBI_A0/HS	37	PG.13/XT1_IN
18	PC.13/SPI1_MOSI1/SC4_RST/SD1_CMD/CAP_DATA6/EBI_A1/HS	38	PG.12/XT1_OUT
19	PC.14/SPI1_MISO1/SC4_PWR/TM3_EXT/SD1_CLK/CAP_DATA5/EBI_A2/HS	39	nRESET
20	PC.15/SPI1_MOSI0/SC4_DAT/SD1_DAT3/CAP_DATA4/EBI_A3/HS	40	LDO_CAP



41	VSS	64	PG.4/PS2_DAT/I2S1_DI/SC1_PWR
42	VDD	65	PG.5/I2S1_BCLK/SC1_DAT
43	PG.10/ICE_CLK	66	PG.6/I2S1_LRCK/SC1_CLK
44	PG.11/ICE_DAT	67	VDD
45	PG.15/X32K_IN/I2C1_SCL	68	VSS
46	PG.14/X32K_OUT/I2C1_SDA	69	PA.7/SC0_CLK/SPI3_SS0/PWM1_3/EPWM0_5/ EBI_A17/HS
47	VBAT	70	PA.8/SC0_RST/SPI3_CLK/PWM1_2/EPWM0_4/ EBI_A18/HS
48	PA.0/TAMPER0/SC0_CD/CAN1_RXD/INT0	71	PA.9/SC0_PWR/SPI3_MISO0/PWM1_1/EPWM0_3/ EBI_A19/HS
49	PA.1/TAMPER1/SC5_CD/CAN1_TXD/EBI_A22	72	PA.10/SC0_DAT/SPI3_MOSI0/PWM1_0/ EPWM0_2/EBI_A20/HS
50	PI.3/SPI3_SS0/HS	73	PA.11/UART0_RTS/SPI3_MISO1/PWM0_5/ EPWM0_1/EBI_AD0/HS
51	PI.4/SPI3_CLK/HS	74	PA.12/UART0_CTS/SPI3_MOSI1/PWM0_4/ EPWM0_0/EBI_AD1/HS
52	PI.5/SPI3_MISO0/HS	75	PA.13/UART0_RXD/SC3_DAT/PWM1_4/EBI_AD2/ HS
53	PI.6/SPI3_MOSI0/HS	76	PA.14/UART0_TXD/SC3_CLK/PWM1_5/EBI_AD3/ HS
54	PD.8/SPI3_MISO1/I2C0_SCL/HS	77	PI.9/I2C4_SCL
55	PD.9/SPI3_MOSI1/I2C0_SDA/HS	78	PI.10
56	PA.2/SC2_DAT/SPI3_MISO0/I2S0_MCLK/ BRAKE11/CAP_SFIELD/EBI_A12/HS	79	PD.10/SC3_DAT/I2C4_SCL
57	PA.3/SC2_CLK/SPI3_MOSI0/I2S0_DO/BRAKE10/ EBI_A13/HS	80	PD.11/SC3_RST/TM3_CNT_OUT
58	PA.4/SC2_PWR/SPI3_CLK/I2S0_DI/QEI1_Z/ EBI_A14/ECAP1_IC2/HS	81	PD.12/SC3_CLK/I2C4_SDA
59	PA.5/SC2_RST/SPI3_SS0/I2S0_BCLK/PWM0_0/ QE11_B/EBI_A15/ECAP1_IC1/HS	82	PA.15/SC3_PWR/UART2_RTS/I2C0_SCL/ EBI_A21/HS
60	PA.6/SC2_CD/I2S0_LRCK/PWM0_1/QEI1_A/ CAN1_TXD/EBI_A16/ECAP1_IC0/HS	83	PC.9/STADC/UART2_CTS/SC3_RST/I2C0_SDA/ CAP_DATA1/I2C3_SCL/EBI_A22/SD1_DAT0/ EBI_A6/HS
61	PI.7/I2C2_SCL/SPI3_MISO1/HS	84	PC.10/SC3_CD/UART2_RXD/PWM0_2/EBI_A23/ EBI_AD2/HS
62	PI.8/I2C2_SDA/SPI3_MOSI1/HS	85	PC.11/UART2_TXD/PWM0_3/EBI_A24/EBI_AD3/ HS
63	PG.3/PS2_CLK/I2S1_DO/SC1_RST	86	LDO_CAP



87	VSS	110	PF.1/SPI2_MOSI1/HS
88	VDD	111	VDD
89	PD.13/SPI1_SS0/UART5_CTS/ECAP0_IC2/HS	112	VSS
90	PD.14/SPI1_CLK/UART5_RTS/ECAP0_IC1/HS	113	PB.2/UART1_RXD/SPI2_SS0/USB1_D-/EBI_AD4/HS
91	PD.15/SPI1_MISO0/UART5_TXD/ECAP0_IC0/HS	114	PB.3/UART1_TXD/SPI2_CLK/USB1_D+/EBI_AD5/HS
92	PF.0/SPI1_MOSI0/UART5_RXD/INT5/HS	115	PB.4/UART1_RTS/SPI2_MISO0/UART4_RXD/TM0_CNT_OUT/EBI_AD6/HS
93	VRES	116	PB.5/UART1_CTS/SPI2_MOSI0/UART4_TXD/EBI_AD7/HS
94	VBUS	117	PB.6/I2C2_SCL/BRAKE01/UART4_RTS/PWM1_4/EPWM1_0/EBI_AD8/HS
95	USB_VDD33_CAP	118	PB.7/I2C2_SDA/BRAKE00/UART4_CTS/PWM1_5/EPWM1_1/EBI_AD9/HS
96	VSSA	119	PB.8/UART5_CTS/EPWM1_2/EBI_AD10/HS
97	USB0_D-	120	PB.9/UART5_RTS/EPWM1_3/EBI_AD11/HS
98	USB0_D+	121	PB.10/UART5_TXD/EPWM1_4/EBI_AD12/HS
99	USB0_OTG_ID	122	PB.11/UART5_RXD/EPWM1_5/EBI_AD13/HS
100	PB.0/USB0_VBUS_ST/I2C4_SCL/INT1	123	PH.0/I2C1_SCL/UART4_RXD/CAN1_RXD/INT7
101	PB.1/USB0_VBUS_EN/I2C4_SDA/TM1_CNT_OUT	124	PH.1/UART4_TXD/I2C1_SDA/CAN1_TXD
102	PG.7/SPI2_MISO0/I2S1_MCLK/SC1_CD/SC3_RST/HS	125	PB.12/UART4_RTS/SPI2_MISO1/CAN0_RXD/EMAC_MII_MDC/EBI_AD14/HS
103	PG.8/SPI2_MOSI0/I2S1_DO/UART4_RTS/SC3_DAT/HS	126	PB.13/UART4_CTS/SPI2_MOSI1/CAN0_TXD/EMAC_MII_MDIO/EBI_AD15/HS
104	PG.9/SPI2_CLK/I2S1_DI/UART4_CTS/SC3_CLK/HS	127	PB.14/I2S1_MCLK/SC1_RST/BRAKE01/EMAC_MII_MDC/HS
105	PI.11/SPI2_SS0/I2S1_BCLK/I2C4_SCL/SC3_PWR/HS	128	PB.15/I2S1_DO/SC1_DAT/BRAKE00/EMAC_MII_MDIO/HS
106	PI.12/SPI2_MISO1/I2S1_LRCK/I2C4_SDA/SC3_CD	129	VDD
107	PI.13	130	VSS
108	PI.14	131	LDO_CAP
109	PI.15	132	PC.0/I2S1_DI/SC1_DAT/UART4_RXD/EMAC_REFCLK/EBI_MCLK/INT2/HS



133	PC.1/I2S1_BCLK/SC1_CLK/UART4_TXD/ TM3_CNT_OUT/EMAC_MII_RXERR/EBI_AD13/HS	155	PH.7/SPI2_MISO0/HS
134	PC.2/I2S1_LRCK/SC1_PWR/UART4_RTS/ SPI0_SS0/EMAC_MII_RXDV/EBI_AD12/HS	156	PH.8/SPI2_MOSI0/HS
135	PC.3/I2S1_MCLK/SC1_CD/UART4_CTS/ SPI0_MISO1/QEI0_Z/EMAC_MII_RXD1/EBI_AD11/ ECAP0_IC2/HS	157	PH.9/SPI2_MISO1/HS
136	PC.4/I2S1_DO/SC1_RST/SPI0_MOSI1/QEI0_B/ EMAC_MII_RXD0/EBI_AD10/ECAP0_IC1/HS	158	PH.10/SPI2_MOSI1/HS
137	PC.5/CLK0/QEI0_A/EMAC_MII_RXCLK/ EBI_MCLK/ECAP0_IC0/HS	159	LDO_CAP
138	PC.6/TM2_EXT/SPI0_MISO0/TM2_CNT_OUT/ EMAC_MII_TXD0/EBI_AD9/HS	160	VSS
139	PC.7/TM1_EXT/SPI0_MOSI0/EMAC_MII_TXD1/ EBI_AD8/HS	161	VDD
140	PC.8/TM0_EXT/SPI0_CLK/EMAC_MII_TXEN/HS	162	PE.0/ADC0_0/INT4
141	PF.2/SPI3_SS0/SD0_DAT3/EMAC_MII_RXD3/HS	163	PE.1/ADC0_1/TM2_CNT_OUT
142	PF.3/SPI3_CLK/SD0_DAT2/EMAC_MII_RXD2/HS	164	PE.2/ADC0_2/ACMP0_O/SPI0_MISO0/HS
143	PF.4/SPI3_MISO0/SD0_DAT1/EMAC_MII_COL0/ HS	165	PE.3/ADC0_3/ACMP0_P3/SPI0_MOSI0/HS
144	PF.5/SPI3_MOSI0/SD0_DAT0/EMAC_MII_CRS/HS	166	PE.4/ADC0_4/ACMP0_P2/SPI0_SS0/HS
145	VSS	167	PE.5/ADC0_5/ACMP0_P1/SPI0_CLK/SD0_CDn/HS
146	VDD	168	PE.6/ADC0_6/ACMP0_P0/SPI0_MISO0/ SD0_CMD/EBI_nWR/HS
147	PF.6/UART2_RXD/SD0_CDn/EMAC_MII_TXCLK/ HS	169	PE.7/ADC0_7/ACMP0_N/SPI0_MOSI0/SD0_CLK/ EBI_nRD/HS
148	PF.7/UART2_TXD/SD0_CMD/EMAC_MII_TXD3/ HS	170	AVSS
149	PF.8/UART2_RTS/SD0_CLK/EMAC_MII_TXD2/HS	171	Vref
150	PH.2/UART2_CTS	172	AVDD
151	PH.3/I2C3_SCL	173	PE.8/ADC1_0/ADC0_8/ACMP1_N/ TM1_CNT_OUT/SD0_DAT3/EBI_ALE/HS
152	PH.4/I2C3_SDA	174	PE.9/ADC1_1/ADC0_9/ACMP1_P0/SD0_DAT2/ EBI_nWRH/HS
153	PH.5/SPI2_SS0/HS	175	PE.10/ADC1_2/ADC0_10/ACMP1_P1/ SPI0_MISO1/SD0_DAT1/EBI_nWRL/HS
154	PH.6/SPI2_CLK/HS	176	PE.11/ADC1_3/ADC0_11/ACMP1_P2/ SPI0_MOSI1/SD0_DAT0/ACMP2_P3/EBI_nCS0/ HS

Table 2-1 NUC472HI8AE LQFP 176-pin Assignment for Extended Connectors

2.3 NuTiny-SDK-NUC472 PCB Placement

The following figure shows the NuTiny-SDK-NUC472 PCB placement.

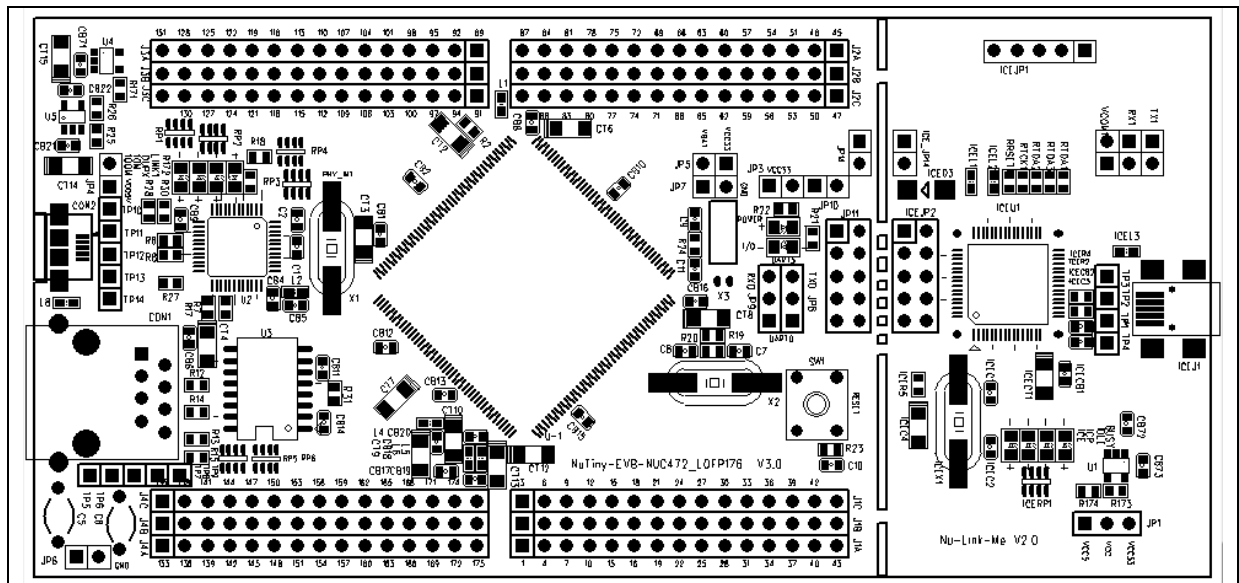


Figure 2-2 NuTiny-SDK-NUC472 PCB Placement



3 Starting to Use NuTiny-SDK-NUC472 on the Keil μ Vision[®] IDE

3.1 Downloading and Installing Keil μ Vision[®] IDE Software

Please connect to the Keil company website (<http://www.keil.com>) to download the Keil μ Vision[®] IDE and install the RVMDK.

3.2 Downloading and Installing Nuvoton Nu-Link Driver

Please connect to Nuvoton NuMicro[™] website (<http://www.nuvoton.com/NuMicro>) to download the “NuMicro[™] Keil μ Vision[®] IDE driver” file. Please refer to *section 6.1* for the detailed download flow. After the Nu-Link driver is downloaded, please unzip the file and execute the “Nu-Link_Keil_Driver.exe” to install the driver.

3.3 Hardware Setup

The hardware setup is shown in the following figure.



Figure 3-1 NuTiny-SDK-NUC472 Hardware Setup



3.4 Example Program

This example, as shown in the directory in Figure 3-2, demonstrates downloading and debugging an application on a NuTiny-SDK-NUC472 board. The example file can be downloaded from Nuvoton NuMicro™ website as described in *section 6.3*.

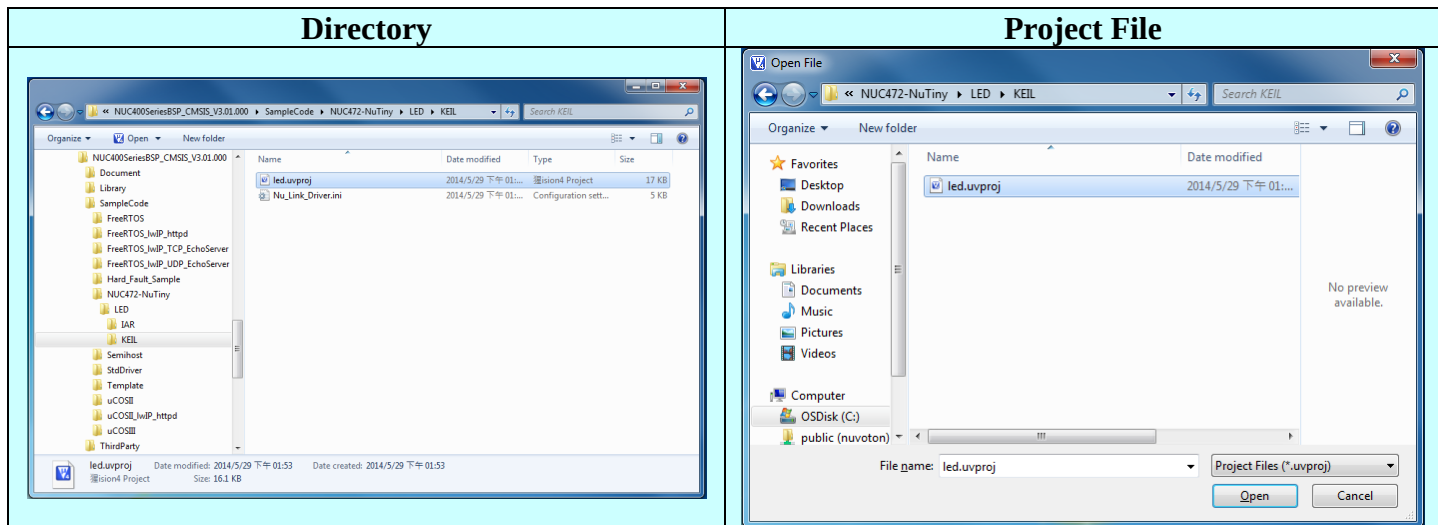


Figure 3-2 Example Directory

To use the example:

The I/O LED on the NuTiny-EVB-NUC472 board will be toggled on.

-  **Start µVision®**
- **Project – Open**
Open the led.uvproj project file
-  **Project – Build**
Compile and link the LED application
-  **Flash – Download**
Program the application code into on-chip Flash ROM

-  **Start Debug mode**
When using the debugger commands, you may:
 - ◆  Review variables in the watch window
 - ◆  Single step through code
 - ◆  Reset the device
 - ◆  Run the application



4 Starting to Use NuTiny-SDK-NUC472 on the IAR Embedded Workbench

4.1 Downloading and Installing IAR Embedded Workbench Software

Please connect to IAR company website (<http://www.iar.com>) to download the IAR Embedded Workbench and install the EWARM.

4.2 Downloading and Installing Nuvoton Nu-Link Driver

Please connect to Nuvoton Company NuMicro™ website (<http://www.nuvoton.com/NuMicro>) to download “NuMicro™ IAR EWARM Driver” file. Please refer to *section 6.2* for the detail download flow. After the Nu-Link driver is downloaded, please unzip the file and execute the “Nu-Link_IAR_Driver.exe” to install the driver.

4.3 Hardware Setup

The hardware setup is shown in the following figure.

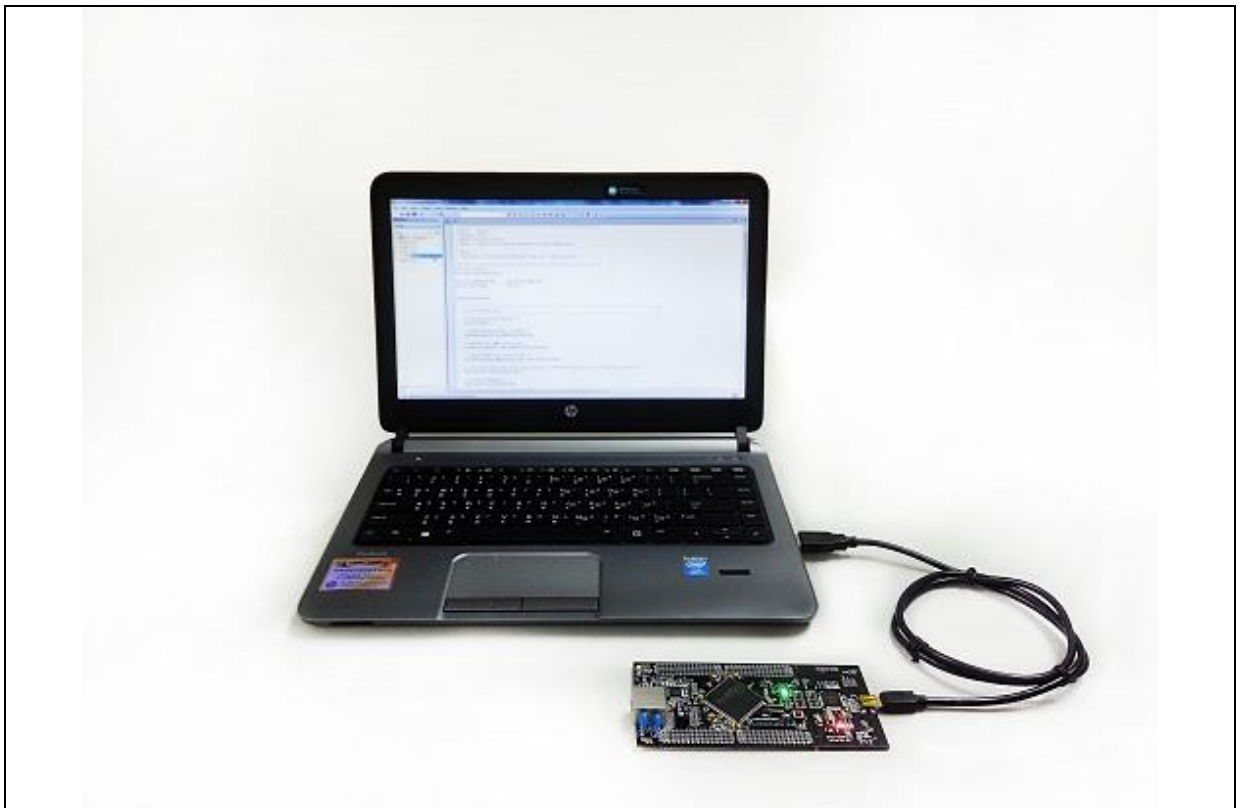


Figure 4-1 NuTiny- SDK-NUC472 Hardware Setup



4.4 Example Program

This example, as shown in the directory in Figure 4-2, demonstrates downloading and debugging an application on a NuTiny-SDK-NUC472 board. The example file can be downloaded from Nuvoton NuMicro™ website as described in *section 6.3*.

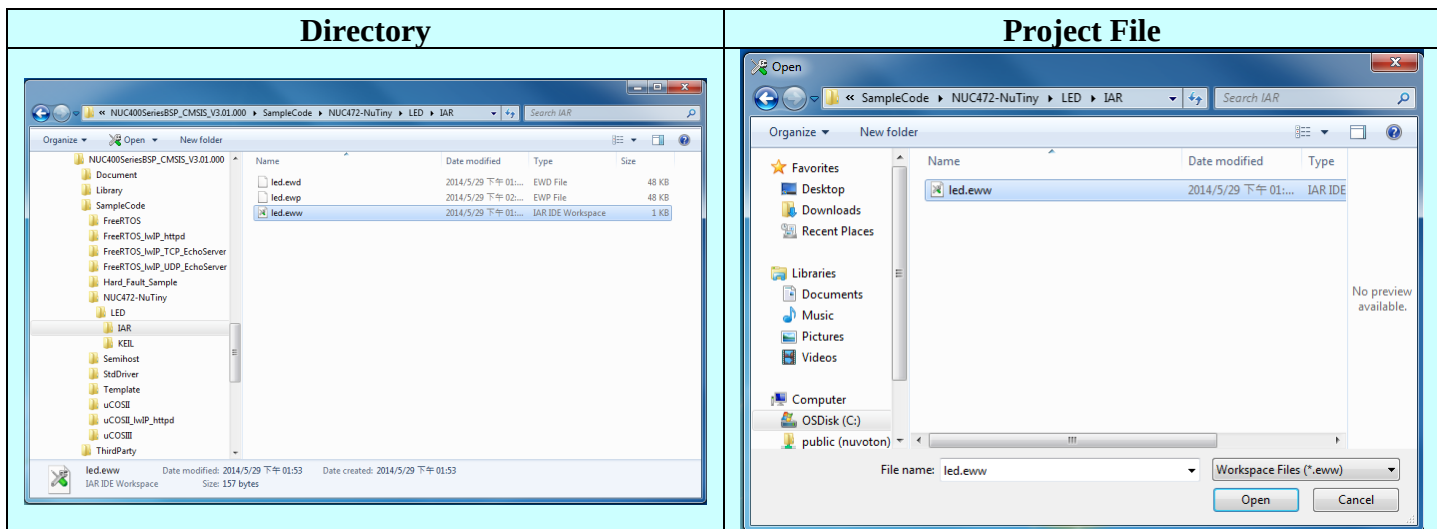


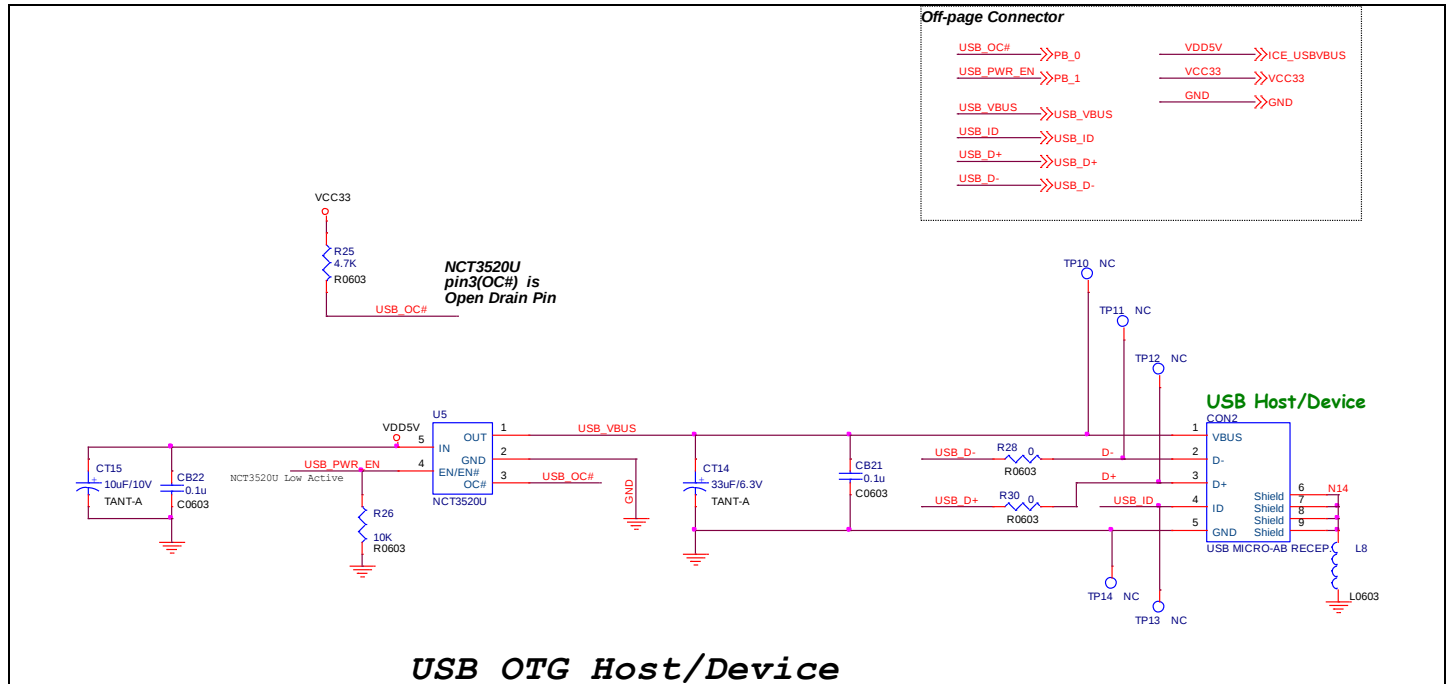
Figure 4-2 Example Directory

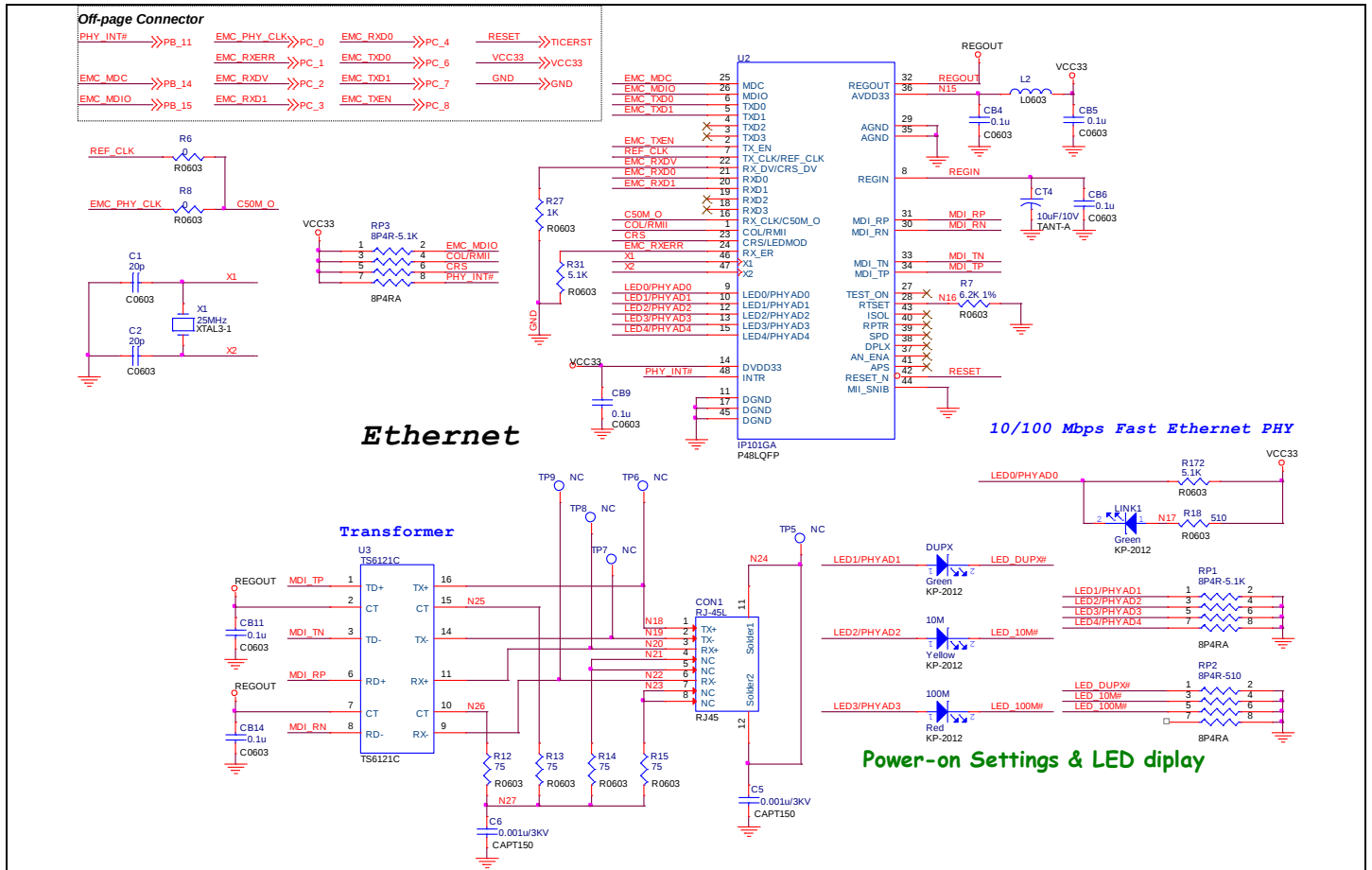
To use the example:

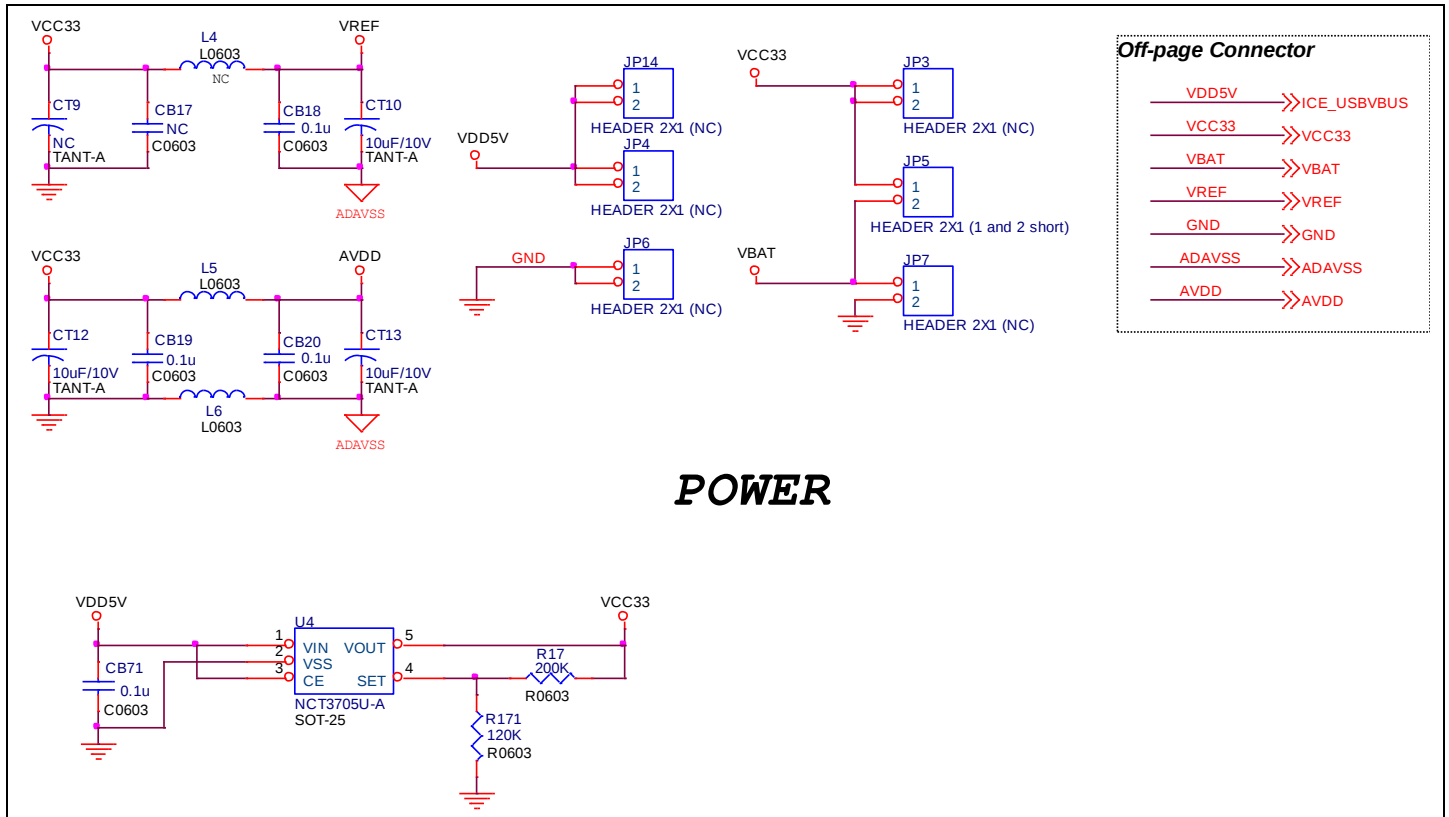
The I/O LED on the NuTiny-EVB-NUC472 board will be toggled on.

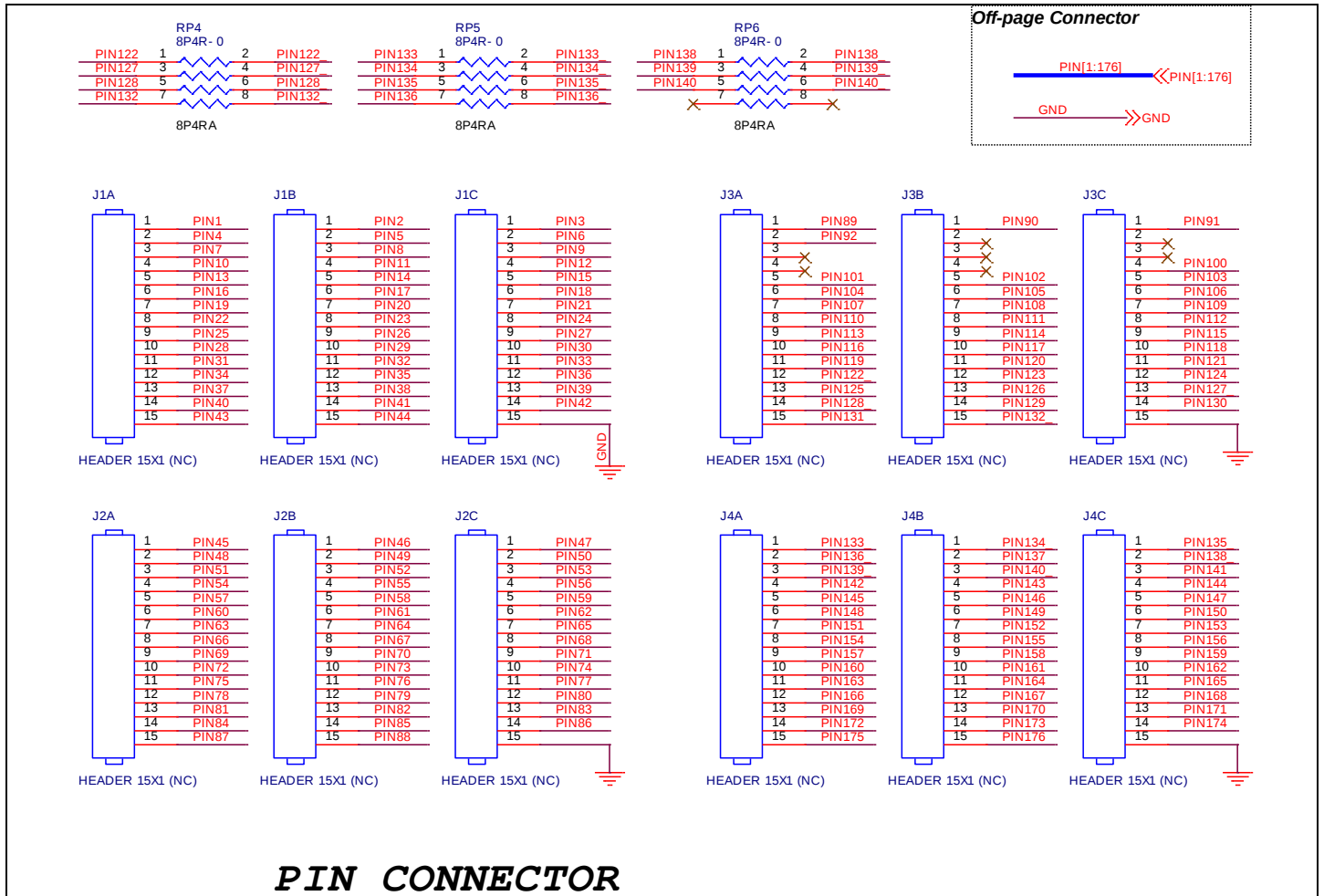
-  **Start IAR Embedded Workbench**
- **File-Open-Workspace**
Open the led.eww workspace file
-  **Project - Make**
Compile and link the LED application
-  **Project – Download and Debug**
Program the application code into on-chip Flash ROM
 - ◆  Single step through code
 - ◆  Reset the device
 - ◆  Run the application

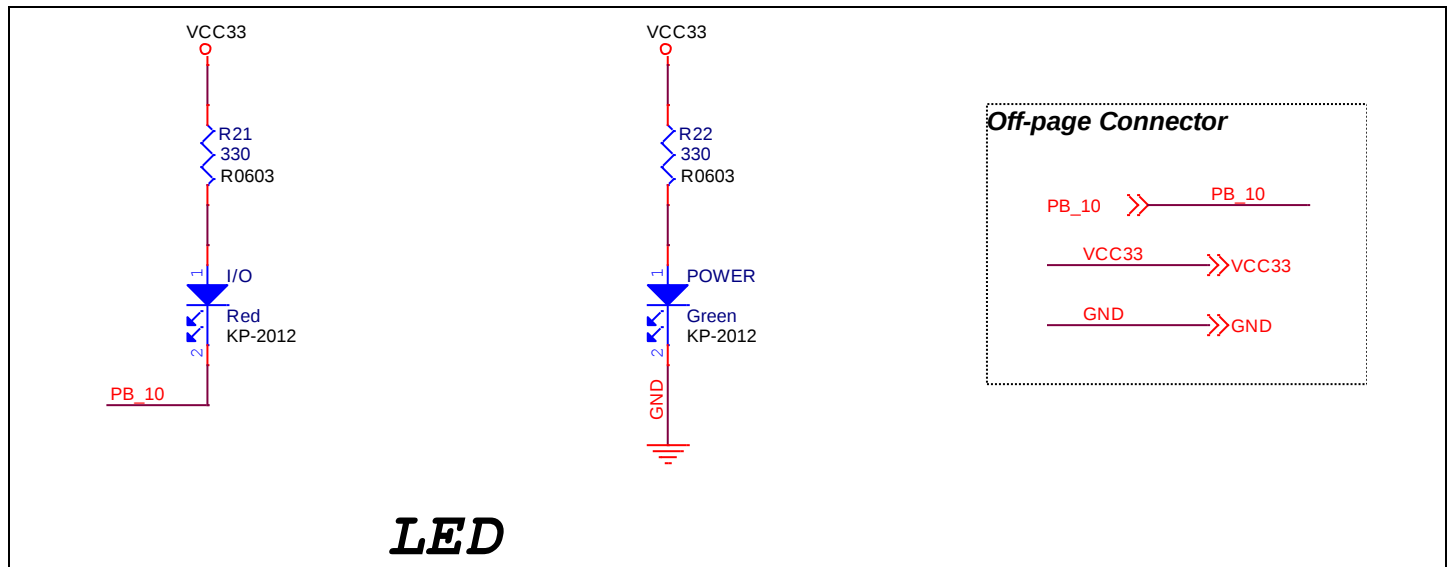
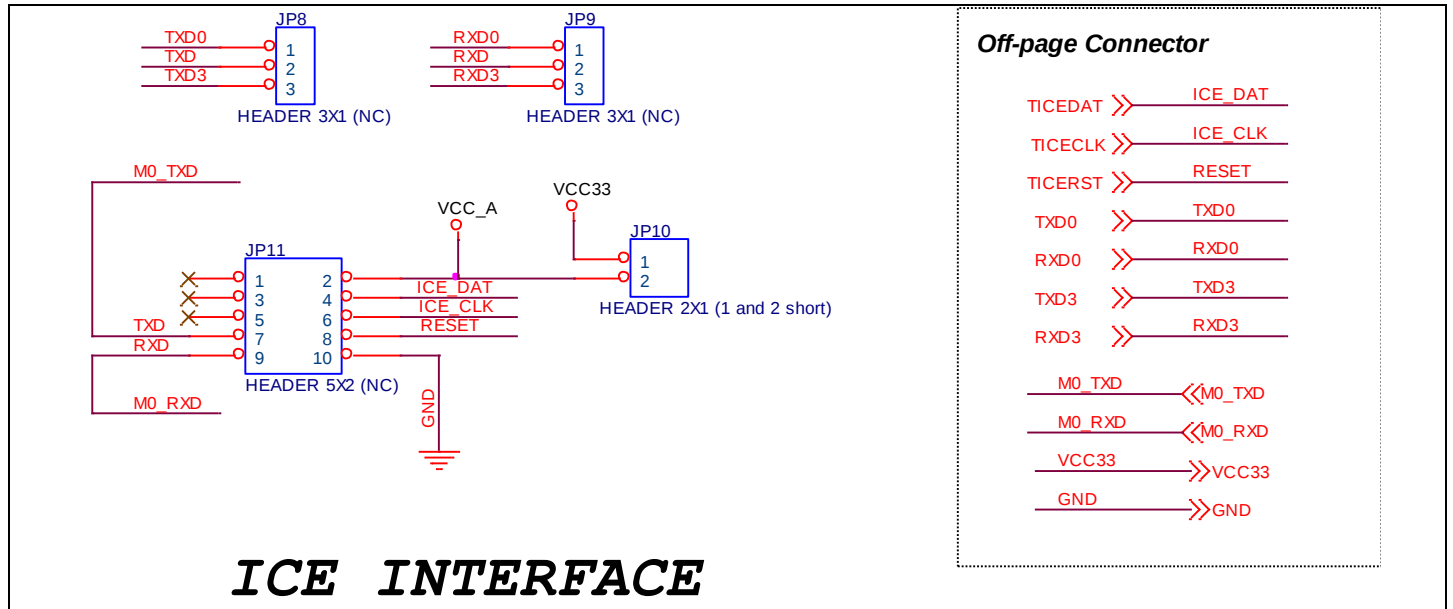




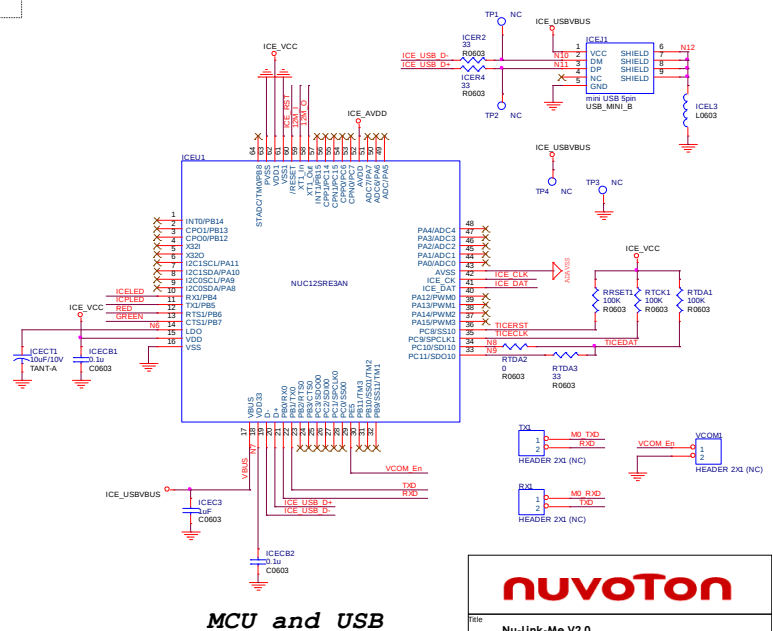
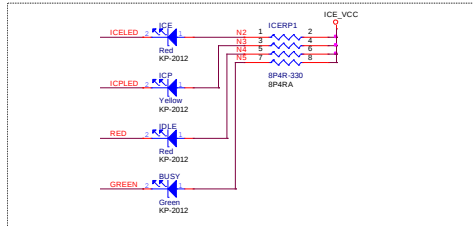
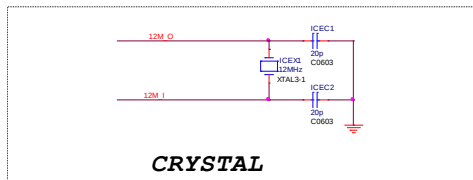
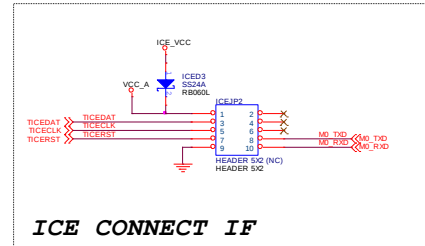
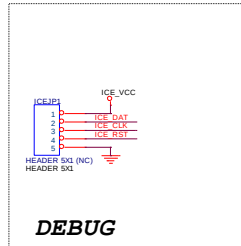
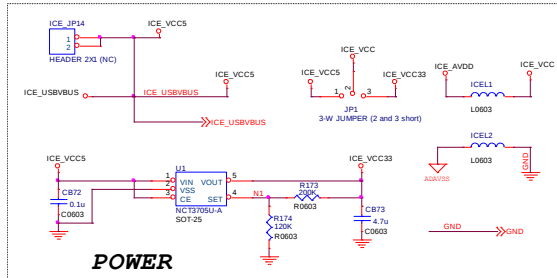








5.2 Nu-Link-Me Schematic



nuvoTon		
File	Nu-Link-Me V2.0	
Doc	Document Number	Rev
Custom	ICE LQFP64.SCH	V3.0
Date	Wednesday, March 02, 2016	Page 2 of 3



6 Downloading NuMicro™ Related Files from Nuvoton Website

6.1 Downloading NuMicro™ Keil µVision® IDE Driver

Step1	Visit the Nuvoton NuMicro™ website: http://www.nuvoton.com/NuMicro .
Step2	The screenshot shows the Nuvoton NuMicro website. The top navigation bar includes links for Products, Applications, Support, Foundry Service, Buy, myNuvoton, and About Nuvoton. A dropdown menu is open under 'Support', showing options like Learning, Product Related Information, Tool & Software, Reference Design, FAQ, Sales Support, Technical Support, and Forum. The 'Tool & Software' option is highlighted. On the left, there is a list of ARM Cortex™-M0 MCUs including AU9110, M051, NUC130/230, NUC140/240, Nano100/102, Nano110/112, Nano120, and Nano130. On the right, there is a product matrix showing various MCU models like NUC220, NUC240, NUC120, NUC230, NUC140, NUC130, NUC100, Nano120, Nano110, Nano100, Nano102, Nano112, M051, and Mini51. The matrix is organized by application (Industrial Control, Low Power, USB Application, Automotive Application, Audio Application) and by MCU type (M0, M3, M4, M7, M0+).

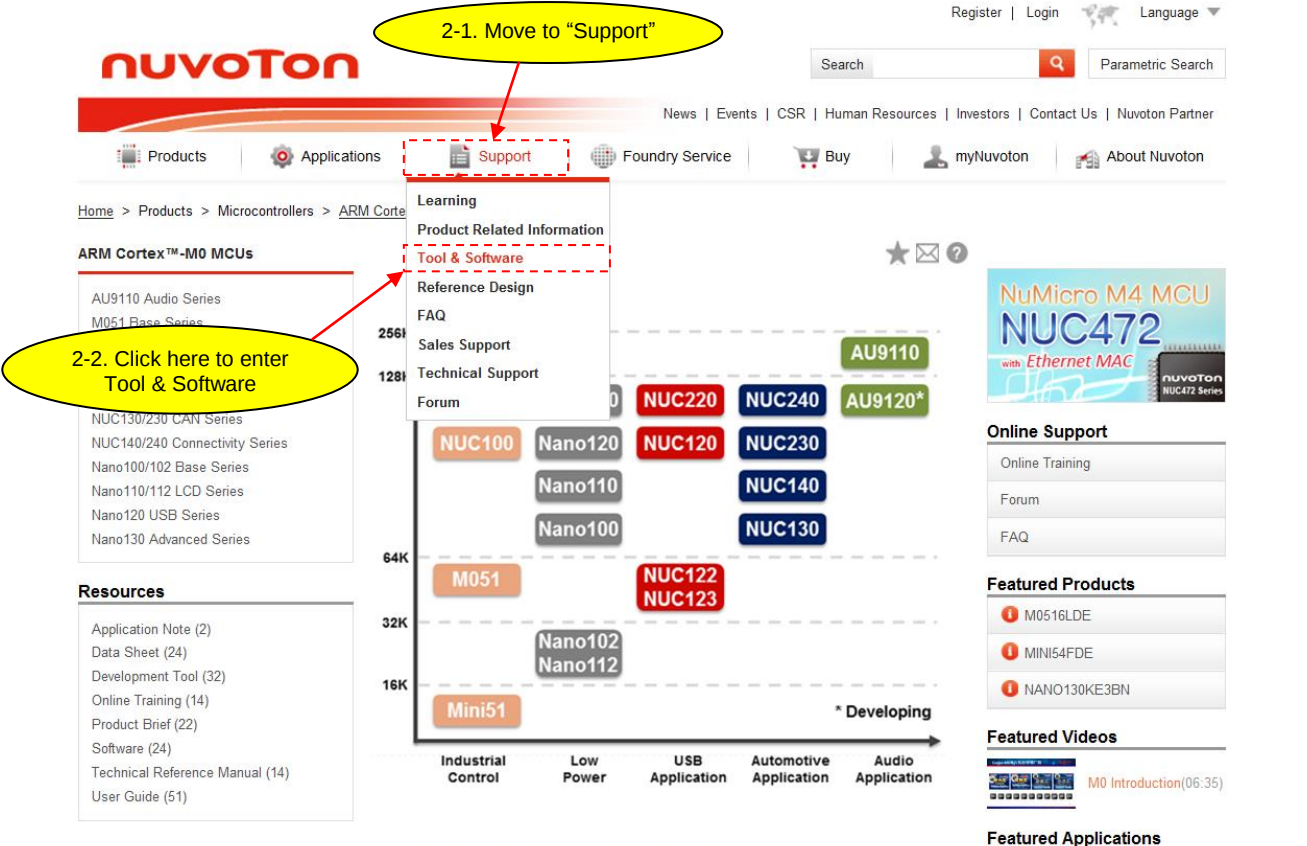


Step3

The screenshot shows the NuvoTon website's 'Development Tool Hardware' page. The left sidebar contains a list of links: Learning, Product Related Information, Tool & Software, Development Tool Hardware, Development Kit, Learning Board, Programmer, **Software** (highlighted with a red dashed box), Third Party Tool, Reference Design, FAQ, Sales Support, Technical Support, and Forum. A yellow callout bubble with the text 'Click here to enter Software download page' points to the 'Software' link. The main content area is divided into three columns: 'Development' (featuring Evaluation Board, Customer Target Board, and NuTiny Board), 'Mass Production' (featuring On-Line In Circuit Programming, Off-Line In Circuit Programming, and IC Programming), and 'Upgrade' (featuring In System Programming). The right sidebar includes a banner for 'NuMicro M4 MCU NUC472 with Ethernet MAC', an 'Events' section with a link to 'Nuvoton Technology Hosts 32-bit Cortex™-M4 Ether...' dated 2014-05-02, and a 'News' section with a link to 'Nuvoton Announces Monthly Revenue for May 2014' dated 2014-06-06.

Step4	Programmer Software Tools Package			
	File name	Description	Version	Date
	 ICP Programming Tool V1.25.6287.zip  Revision History	NuMicro ICP tool & user manual	V1.25.6287	2014-01-16
	 ISP Programming Tool V1.44.zip  Revision History	NuMicro ISP Programming Tool & user manual	V1.44	2014-01-20
	 NuGang Programmer V6.21.zip  Revision History	NuMicro NuGang Programmer & user manual	V6.21	2014-01-24
	Click here to download the file.			
	Nu-Link Driver			
	File name	Description	Version	Date
	 Nu-Link Driver for Keil RVMDK V1.25.6287.zip  Revision History	This driver is to support Nu-Link to work under Keil RVMDK Development Environment for all NuMicro Family Devices.	V1.25.6287	2014-01-16
	 Nu-Link Driver for IAR EWARM V1.25.6287.zip  Revision History	This driver is to support Nu-Link to work under IAR EWARM Development Environment for all NuMicro Family Devices.	V1.25.6287	2014-01-16
 User Feedback ↑ TOP				
Step5	Download the NuMicro™ Keil μVision® IDE driver.			

6.2 Downloading NuMicro™ IAR EWARM Driver

Step1	Visit the Nuvoton NuMicro™ website: http://www.nuvoton.com/NuMicro .
Step2	 The screenshot shows the Nuvoton NuMicro website. The top navigation bar includes links for Products, Applications, Support, Foundry Service, Buy, myNuvoton, and About Nuvoton. The 'Support' dropdown menu is open, showing options like Learning, Product Related Information, Tool & Software, Reference Design, FAQ, Sales Support, Technical Support, and Forum. The 'Tool & Software' link is highlighted with a red dashed box and a yellow oval labeled '2-2. Click here to enter Tool & Software'. The main content area features a product matrix with various NuMicro MCUs (NUC100, Nano120, NUC120, NUC230, AU9110, NUC240, AU9120*, NUC122, NUC123, Nano100, Nano110, Nano102, Nano112, Mini51, M051) categorized by application (Industrial Control, Low Power, USB Application, Automotive Application, Audio Application) and memory size (16K, 32K, 64K, 128K, 256K). The 'Resources' section on the left lists various documents like Application Note, Data Sheet, Development Tool, Online Training, Product Brief, Software, Technical Reference Manual, and User Guide. The right sidebar contains sections for Online Support (Online Training, Forum, FAQ), Featured Products (M0516LDE, MINI54FDE, NANO130KE3BN), Featured Videos (M0 Introduction), and Featured Applications.



Step3

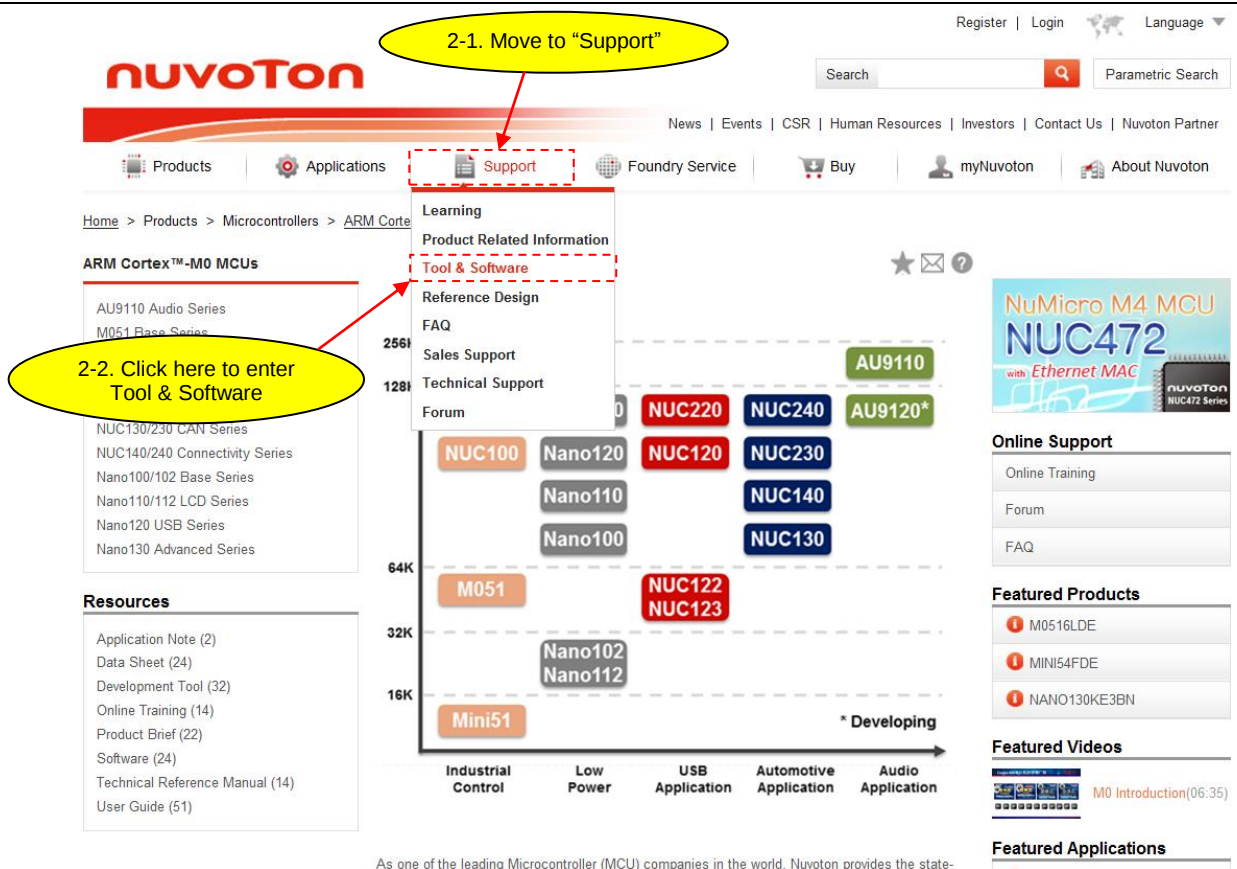
The screenshot shows the NuvoTon website's 'Development Tool Hardware' page. The left sidebar contains a list of links: Learning, Product Related Information, Tool & Software, Development Tool Hardware, Development Kit, Learning Board, Programmer, **Software** (highlighted with a red dashed box and a yellow callout bubble), Third Party Tool, Reference Design, FAQ, Sales Support, Technical Support, and Forum. The main content area is divided into three columns: 'Development' (featuring Evaluation Board, Customer Target Board, and NuTiny Board), 'Mass Production' (featuring On-Line In Circuit Programming, Off-Line In Circuit Programming, and IC Programming), and 'Upgrade' (featuring In System Programming). A yellow callout bubble with the text 'Click here to enter Software download page' points to the 'Software' link in the sidebar.

Step4	Programmer Software Tools Package			
	File name	Description	Version	Date
	 ICP Programming Tool V1.25.6287.zip  Revision History	NuMicro ICP tool & user manual	V1.25.6287	2014-01-16
	 ISP Programming Tool V1.44.zip  Revision History	NuMicro ISP Programming Tool & user manual	V1.44	2014-01-20
	 NuGang Programmer V6.21.zip  Revision History	NuGang Programmer software & user manual	V6.21	2014-01-24
	Nu-Link Driver			
	File name	Description	Version	Date
	 Nu-Link Driver for Keil RVMDK V1.25.6287.zip  Revision History	This driver is to support Nu-Link to work under Keil RVMDK Development Environment for all NuMicro Family Devices.	V1.25.6287	2014-01-16
	 Nu-Link Driver for IAR EWARM V1.25.6287.zip  Revision History	This driver is to support Nu-Link to work under IAR EWARM Development Environment for all NuMicro Family Devices.	V1.25.6287	2014-01-16
	 User Feedback ↑ TOP			
Step5	Download the NuMicro™ IAR EWARM driver.			

6.3 Downloading NuMicro™ NUC472 Series BSP Software Library

Step1 Visit the Nuvoton NuMicro™ website: <http://www.nuvoton.com/NuMicro>.

Step2



The screenshot shows the Nuvoton NuMicro website. The navigation bar includes links for Products, Applications, Support, Foundry Service, Buy, myNuvoton, and About Nuvoton. The 'Support' link is highlighted with a red dashed box and an arrow pointing to it from a yellow oval labeled '2-1. Move to "Support"'. Below the navigation bar, the 'Support' dropdown menu is open, showing options: Learning, Product Related Information, Tool & Software (highlighted with a red dashed box and an arrow from a yellow oval labeled '2-2. Click here to enter Tool & Software'), Reference Design, FAQ, Sales Support, Technical Support, and Forum. The main content area features a product matrix with various NuMicro MCUs (NUC100, Nano120, NUC120, NUC230, NUC240, NUC122, NUC123, Nano100, Nano110, Nano102, Nano112, Mini51, AU9110, AU9120*) plotted against flash memory size (16K, 32K, 64K, 128K, 256K) and application categories (Industrial Control, Low Power, USB Application, Automotive Application, Audio Application). The 'Tool & Software' link in the dropdown menu is the target for the next step.

Step3	 The screenshot shows the NuvoTon website's 'Development Tool Hardware' page. The left sidebar contains a list of links: Learning, Product Related Information, Tool & Software, Development Tool Hardware, Development Kit, Learning Board, Programmer, Software (highlighted with a red dashed box and a yellow callout bubble), Third Party Tool, Reference Design, FAQ, Sales Support, Technical Support, and Forum. The main content area is divided into three columns: 'Development', 'Mass Production', and 'Upgrade'. The 'Development' column includes links for Evaluation Board, Customer Target Board, and NuTiny Board. The 'Mass Production' column includes links for On-Line In Circuit Programming, Off-Line In Circuit Programming, and IC Programming. The 'Upgrade' column includes links for In System Programming and Through. A yellow callout bubble with the text 'Click here to enter Software download page' points to the 'Software' link in the sidebar.
Step4	Download the NuMicro™ NUC442_472 Series CMSIS BSP.



7 Revision History

Revision	Date	Description
1.02	March 01, 2016	1. Corrected the MCU pin assignment 2. Modified the schematic and changed the part from IP101A to IP101GA
1.01	July 02, 2014	Update <i>section 6 Downloading NuMicro™ Related Files from Nuvoton Website</i> download path.
1.00	May 09, 2014	Initially release.

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Insecure usage includes, but is not limited to: equipment for surgical implementation, atomic energy control instruments, airplane or spaceship instruments, the control or operation of dynamic, brake or safety systems designed for vehicular use, traffic signal instruments, all types of safety devices, and other applications intended to support or sustain life.

All Insecure Usage shall be made at customer's risk, and in the event that third parties lay claims to Nuvoton as a result of customer's Insecure Usage, customer shall indemnify the damages and liabilities thus incurred by Nuvoton.

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