

# **NUC501 Quick Start Guide for IAR**

**V1.01.001**

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# 1. Introduction

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## 1.1. About the Quick Start Guide

This Quick Start Guide will instruct you on how to use the IAR EWARM based software development tools with the NUC501 development board. It gives you the information necessary to use IAR EWARM for your own projects and provides an overview of the most commonly used IAR EWARM features.

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## 1.2. About NCU501

The NCU501 is an ARM7TDMI-based MCU, specifically designed to offer low-cost and high performance for various applications, like interactive toys, edutainment robots, and home appliances. It integrates the 32-bit RISC CPU with 32KB high-speed SRAM, crypto engine with OTP key, boot ROM, LDO regulator, ADC, DAC, I2C, SPI, USB2.0 FS Device, & GPIO into a cost-affordable while feature-rich micro-controller.

With so many practical peripherals integrated around the high-performance ARM7 CPU, the NCU501 is suitable for such applications as Interactive toys, edutainment robots, and home appliances. Whenever MIPS-hungry task meets cost-effective demand, you'll find the NCU501 truly useful to satisfy the requirement.

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## 1.3. About IAR EWARM

IAR Embedded Workbench for ARM (EWARM) is an integrated development environment for building and debugging embedded applications and it is provided by IAR Corp.

## 2. Quick Start

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### 2.1. Installing the IAR EWARM

IAR provides IAR EWARM evaluation version in their web site and it could be download from <http://www.iar.com>.

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### 2.2. Connecting to your target

In order to do source level debug, a JTAG-based debug hardware, such as J-Link ICE, is required. The cable of the ICE need to connect to the 20-pin ICE connector on NUC501 DEV Board as follows:

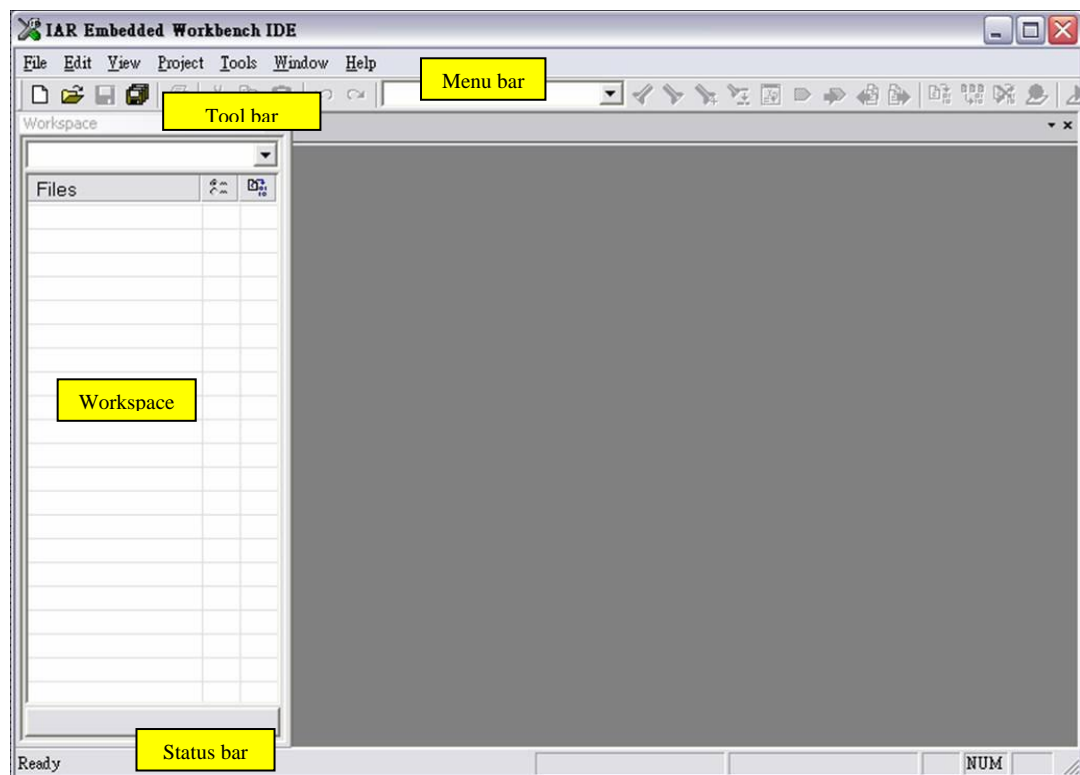
J-Link ICE connects to the NUC501 using the 20-pin ribbon cable.




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### 2.3. IAR EWARM Overview

The UI of IAR EWARM is as following figure:

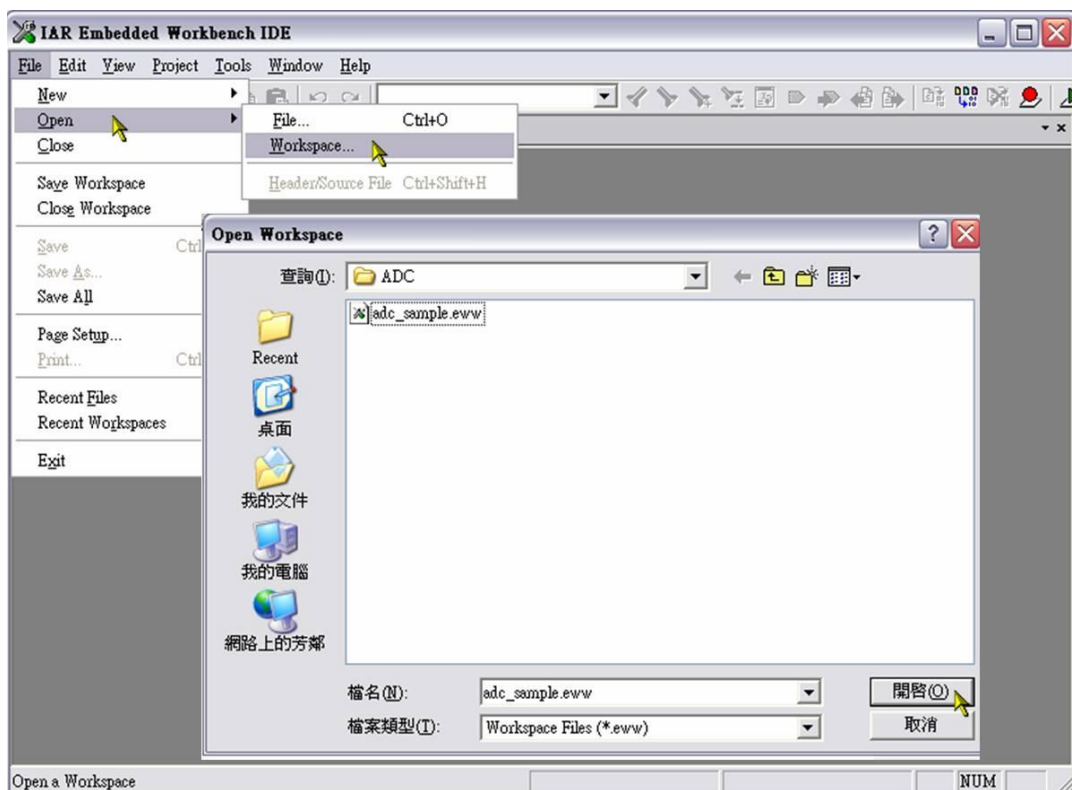


## 2.4. Step-by-Step

This section details all of the materials necessary to download code to an ARM-based development board to debug with IAR EWARM IDE using the JTAG debug agent.

### 2.4.1. Starting the software

We can open the existed workspace by executing File -> Open -> Workspace and select the target workspace file to open. The UI is as following figure:

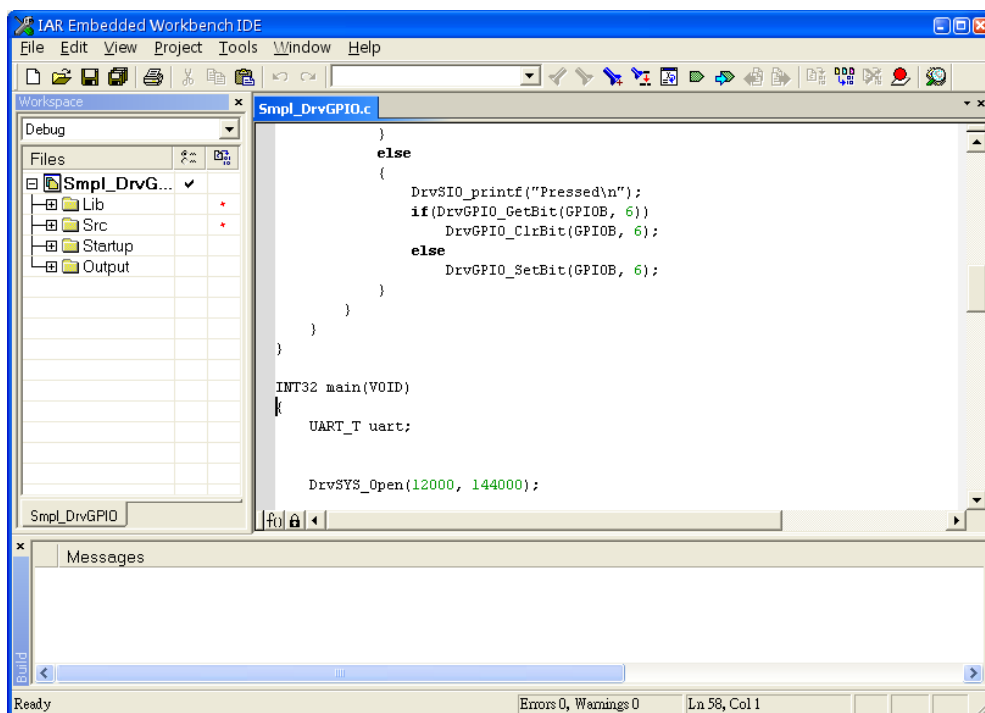


After installing the IAR EWARM, we also can open the workspace by double click the workspace file. The extend file name the workspace file is .eww.

名稱	大小	類型
adc_sample.c	5 KB	C Source
adc_sample.dep	8 KB	DEP 檔案
adc_sample.ewd	35 KB	EWD 檔案
adc_sample.evp	42 KB	EVP 檔案
adc_sample.eww	1 KB	IAR IDE Workspace

Double click to open the target workspace.

The snapshot after opening the project:



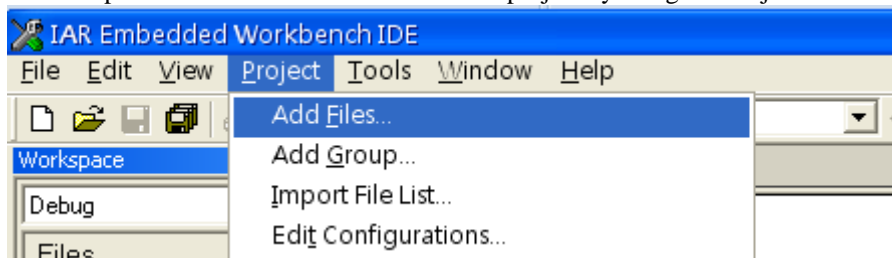
## 2.4.2. Create New Project

It is recommended using the existed project as a template to create a new project. You may find the existed sample code which is nearest to your target application and copy it to new directory to be your first step. All driver sample code of NUC501 is target to be executed in SRAM and you should refer to the “APP\_221\_0001\_Boot From SPI ROM” application note for booting from SPI ROM/Flash.

## 2.4.3. Modify the Program

After opening the workspace, you may modify the code if necessary. The IAR EWARM includes a text editor for user to modify the code. The user could open the source file by click the file name in the workspace window by mouse.

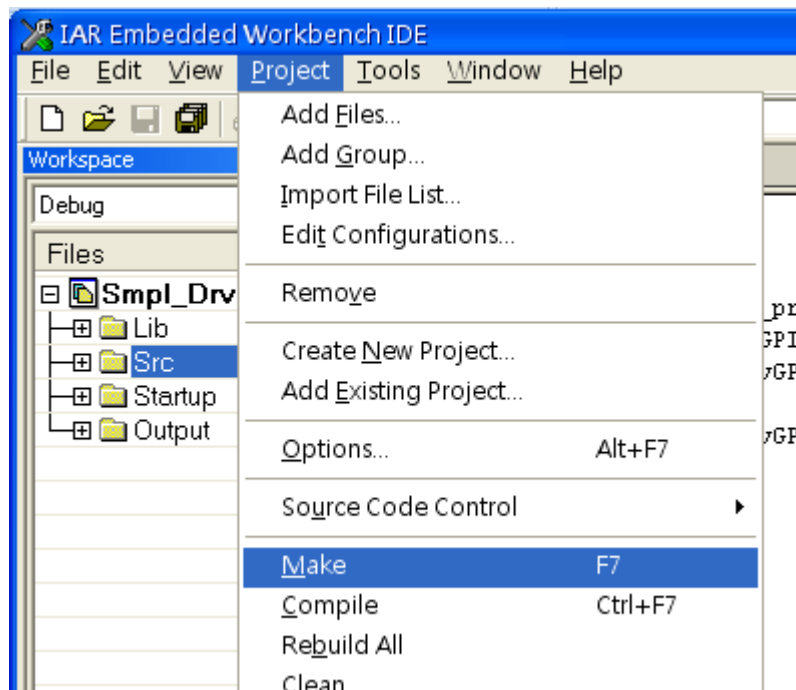
It is also possible to add new source file to the project by using the Project -> Add Files.



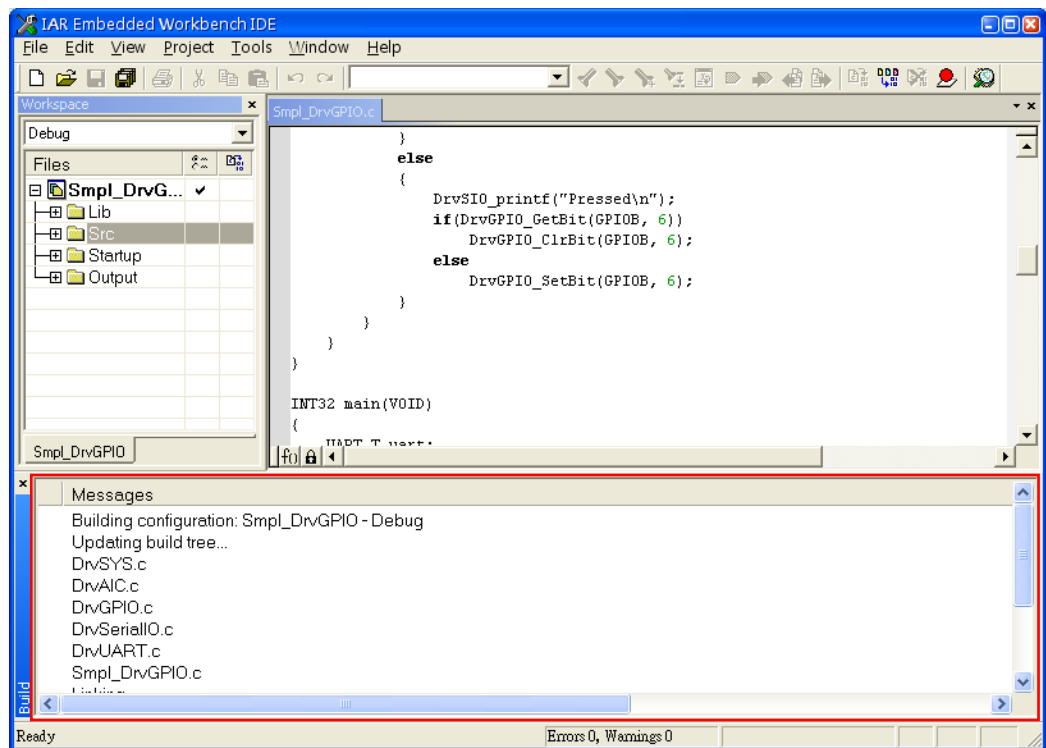


## 2.4.4. Build the Project

To build the project, we can select the Project -> Make in the menu of using hot key “F7”.



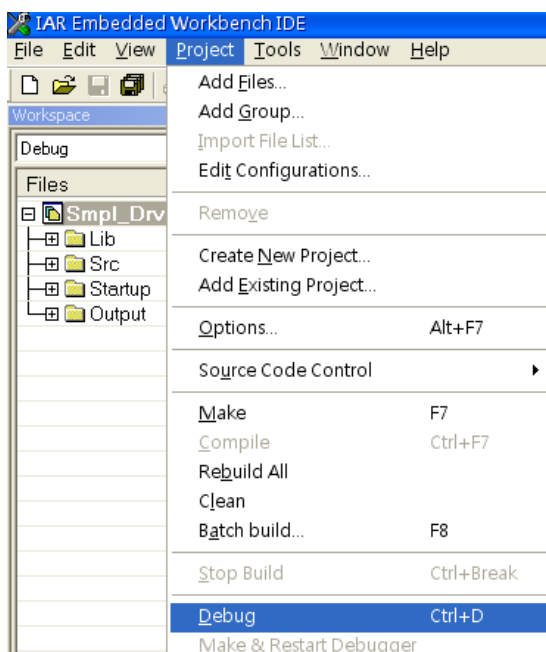
The build result will display on the built message window:



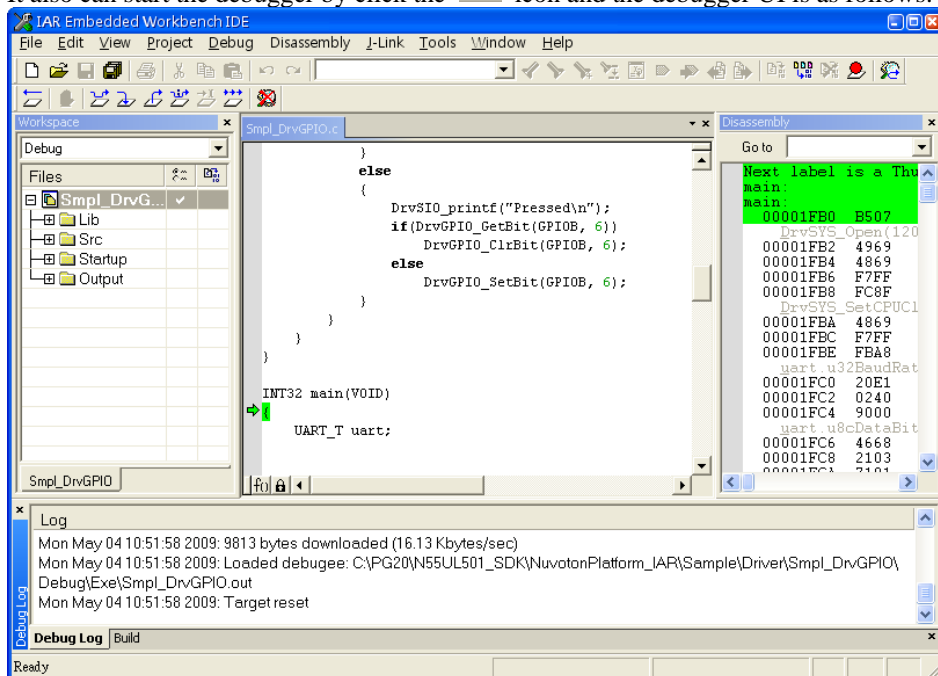
## 2.4.5. Source Level Debug

NUC501 supports any JTAG-Based ICE for ARM. Therefore, if a ICE is attached to the NUC501 DEV Board, it could do the source level debugging through the ICE, such as J-Link ICE.

To start the source level debug, select the Project -> Debug



It also can start the debugger by click the  icon and the debugger UI is as follows:



The IAR EWARM support several debug functions, such as step into, step over, step out, next statement, run to cursor, breakpoint and etc.

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### 2.4.6. Conclusion

Now we have described how to open a NUC501 workbench to work with NUC501. Each IP driver of NUC501 includes a relative sample code for it and it is recommended to try these sample code to be a start of NUC501. If it is necessary to create your own program, the sample code also provides a good example of the new project. You may just copy the sample code and modify it to fit your own application.

For more detail of the information of the IAR EWARM could be found on their web site. You will find the detail information form <http://www.iar.com>.

### 3. Revision History

Version	Date	Description
V1.01.001	May. 04, 2009	<ul style="list-style-type: none"> <li>Created</li> </ul>

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