

# Getting Started with Keil $\mu$ Vision

WEL Team, IIT Bombay  
2022

# Development Tools

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- **Editor**
  - Entry of code into files
- **Assembler or Compiler**
  - Generate machine code from source code
- **Downloader**
  - Put machine code in the chip
- **Execution check**
  - Using Debugger to verify operation of program (on Hardware or Simulator)

**Single Point Solution?**

# Keil $\mu$ Vision IDE

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- **Keil  $\mu$ Vision**

An easy-to-use **IDE** (Integrated Development Environment)

- Project management,
- Source code editing,
- Code building facilities,
- Run-time environment,
- Program debugging



**Since 1982**

**Acquisition by**



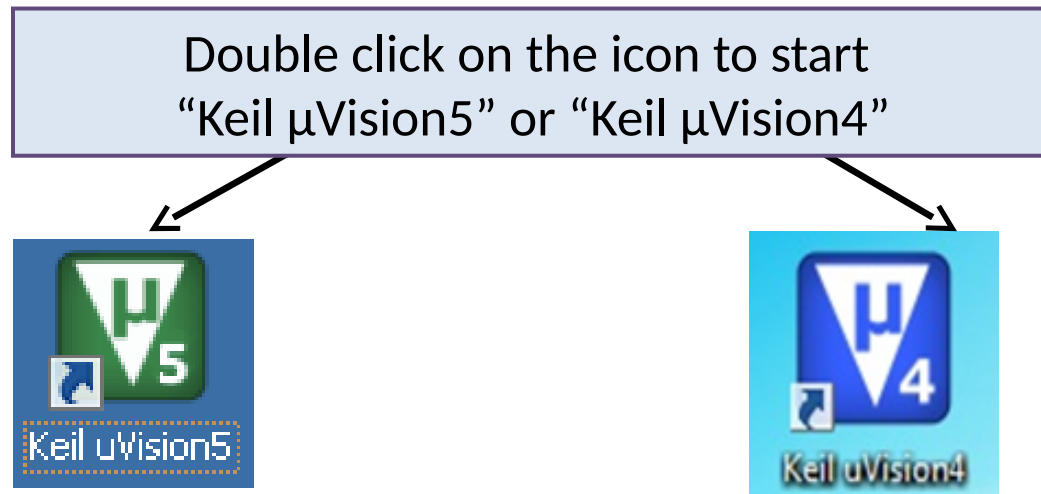
**Around 2005**

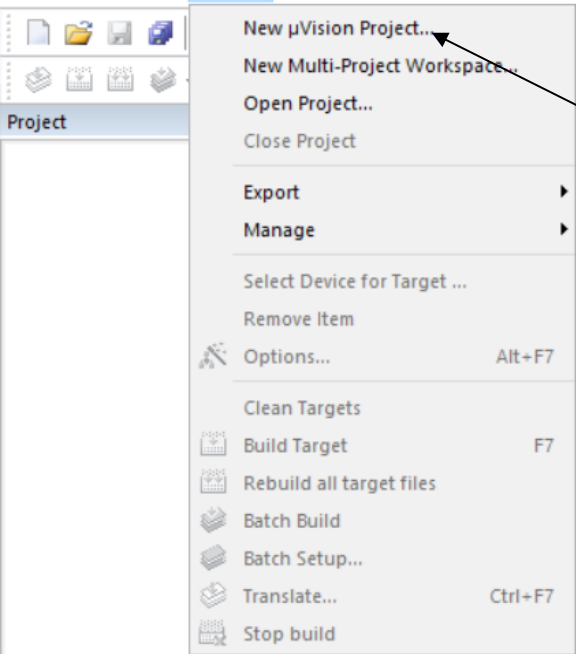
**Now providing**



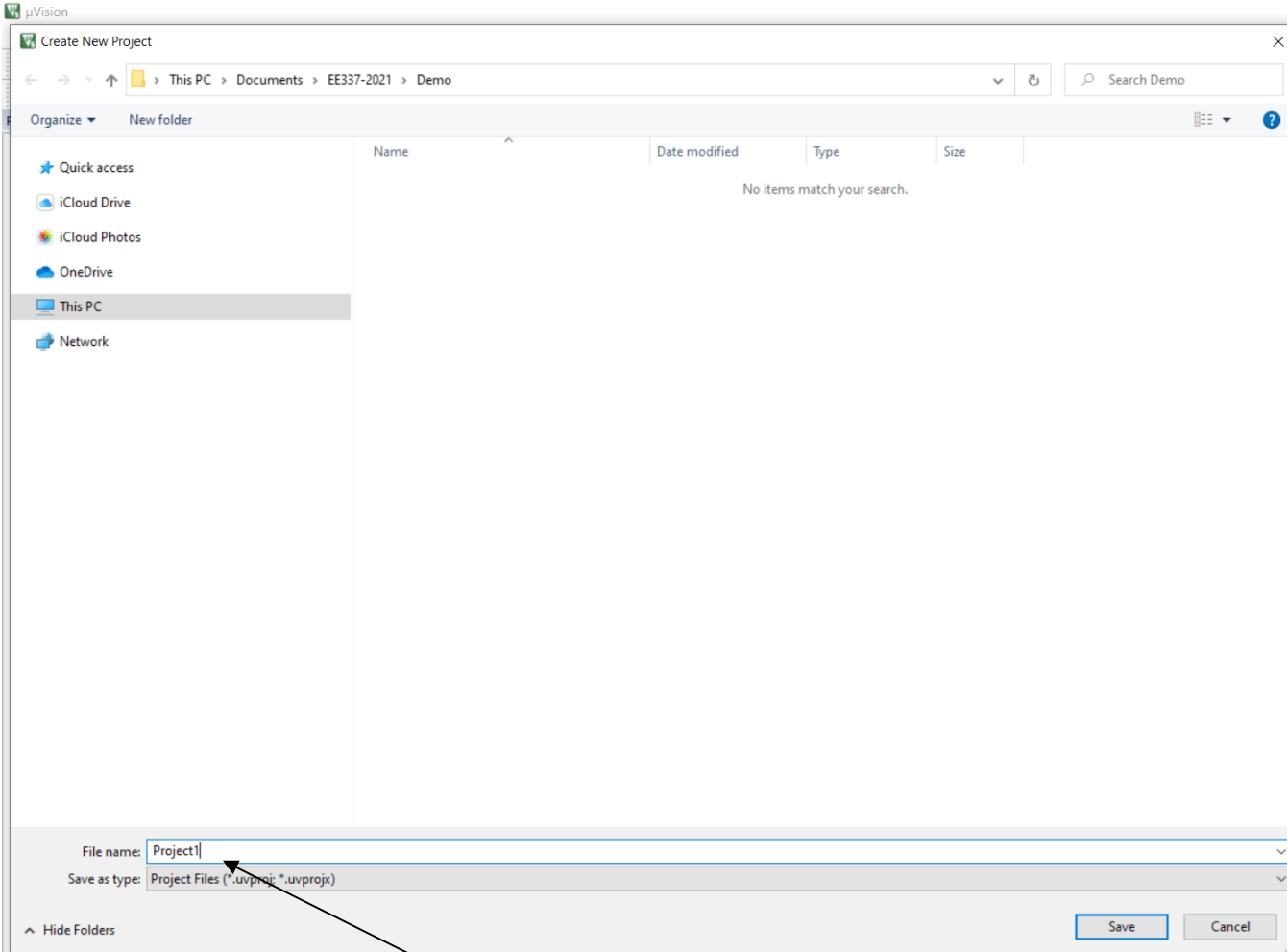
# Keil $\mu$ Vision IDE

- **Project**
  - A collection of files related to a particular programming task.
- **Build**
  - The process in which **only the files modified since last build** are assembled/compiled for the chosen microcontroller device
- **Rebuild**
  - The process in which **all files are assembled/compiled** irrespective of their modification state.

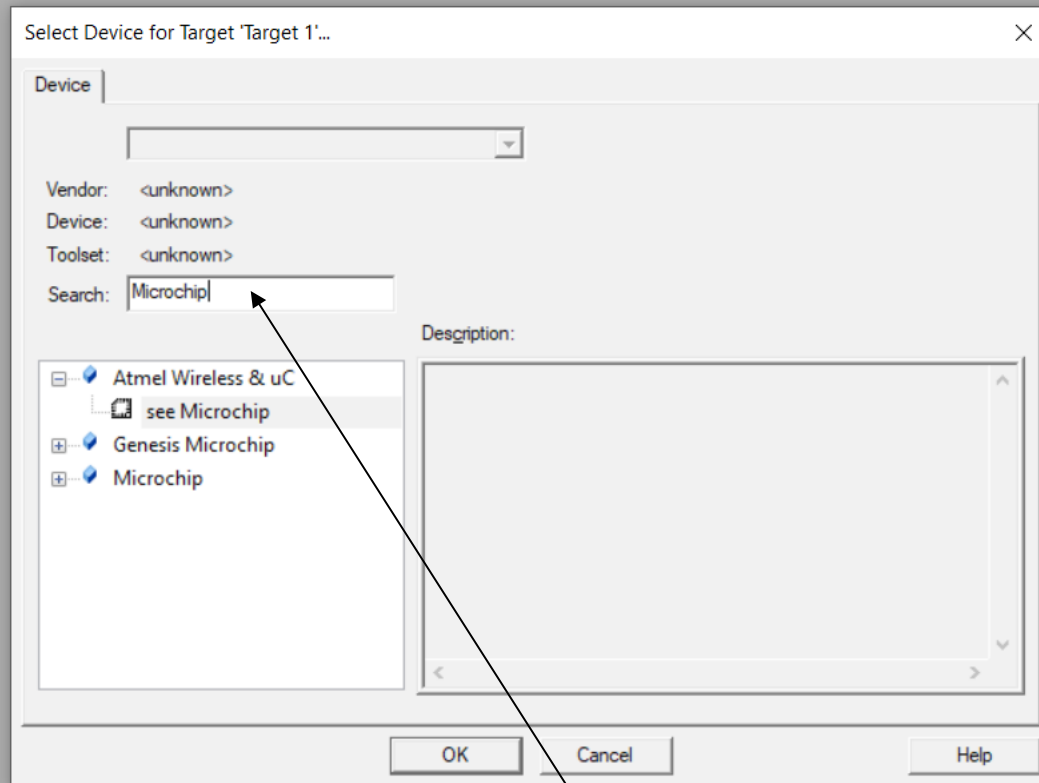




Create a new project by clicking  
on “New µVision Project”

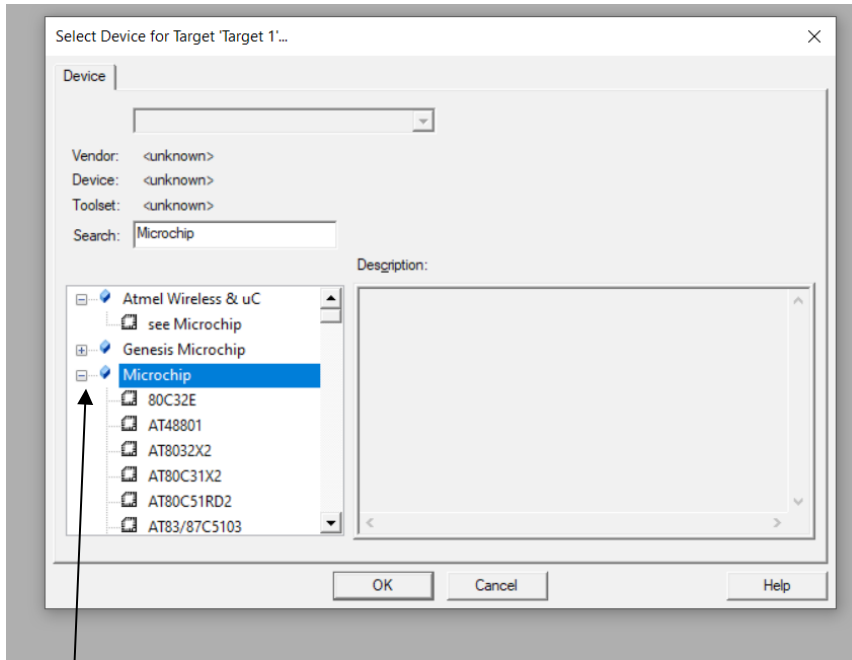


Specify the name of your project.

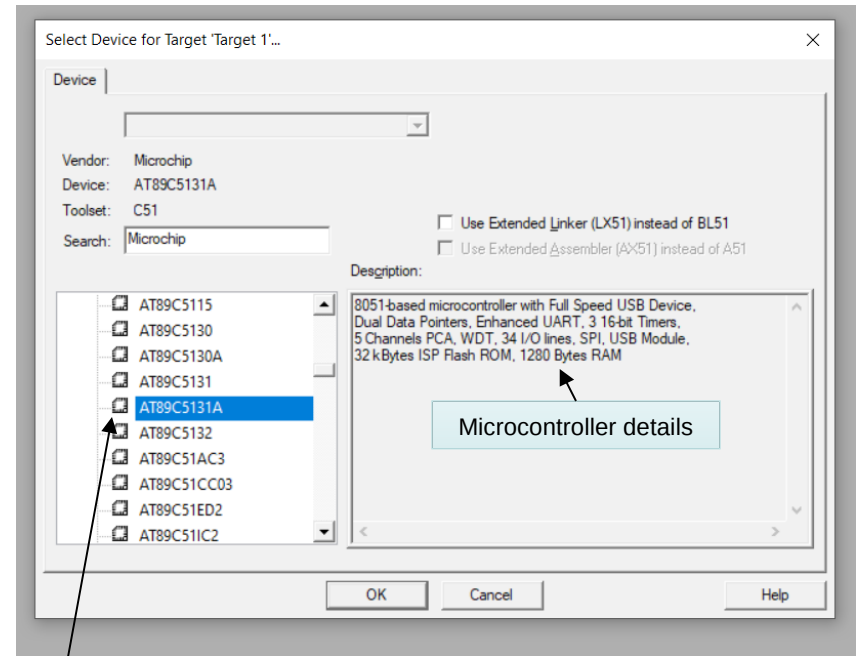


In the "Select Device for Target" dialog, type Microchip

The Pt-51 board uses an Atmel microcontroller (AT89C5131A). Atmel was acquired by Microchip Technology Inc in 2016.

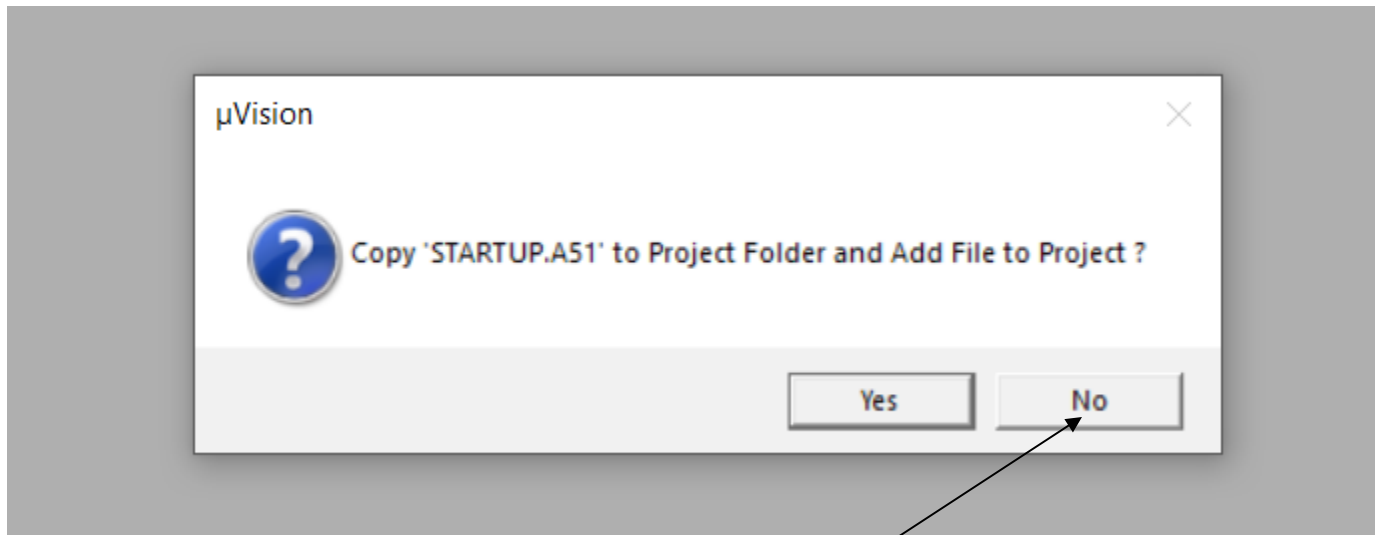


Expand the list of Microchip devices



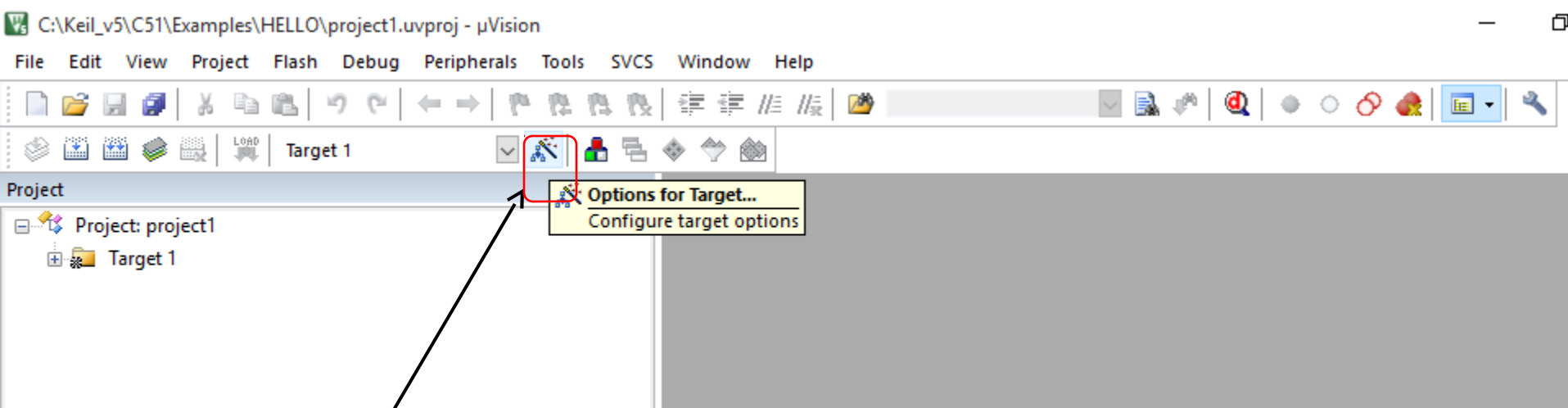
Choose AT89C5131A from the list





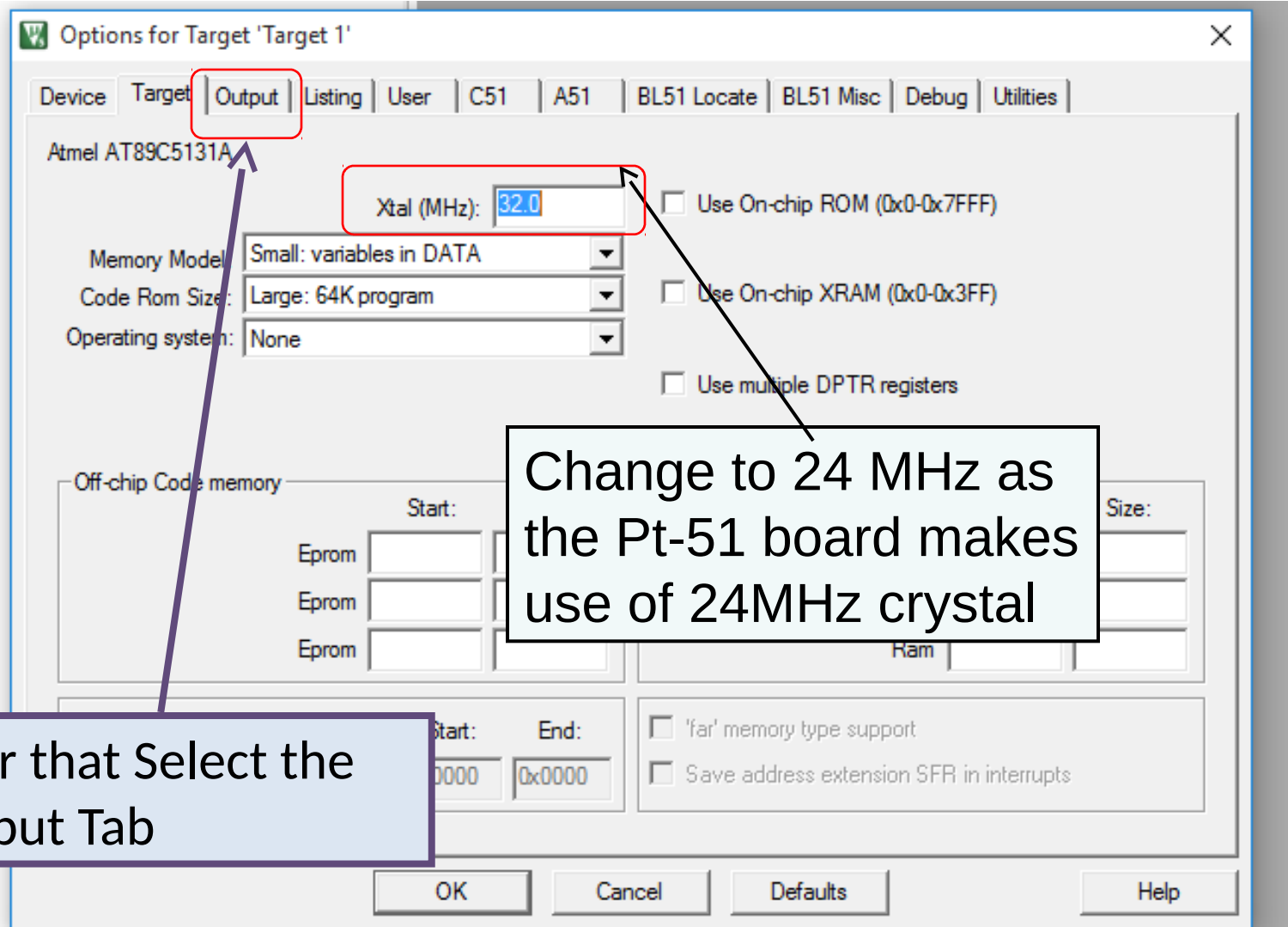
- In the dialog which pops up, choose “No” if you are going to write programs in assembly language.
- STARTUP.A51 is a file required for writing programs in C.

# Configuring the Project target options

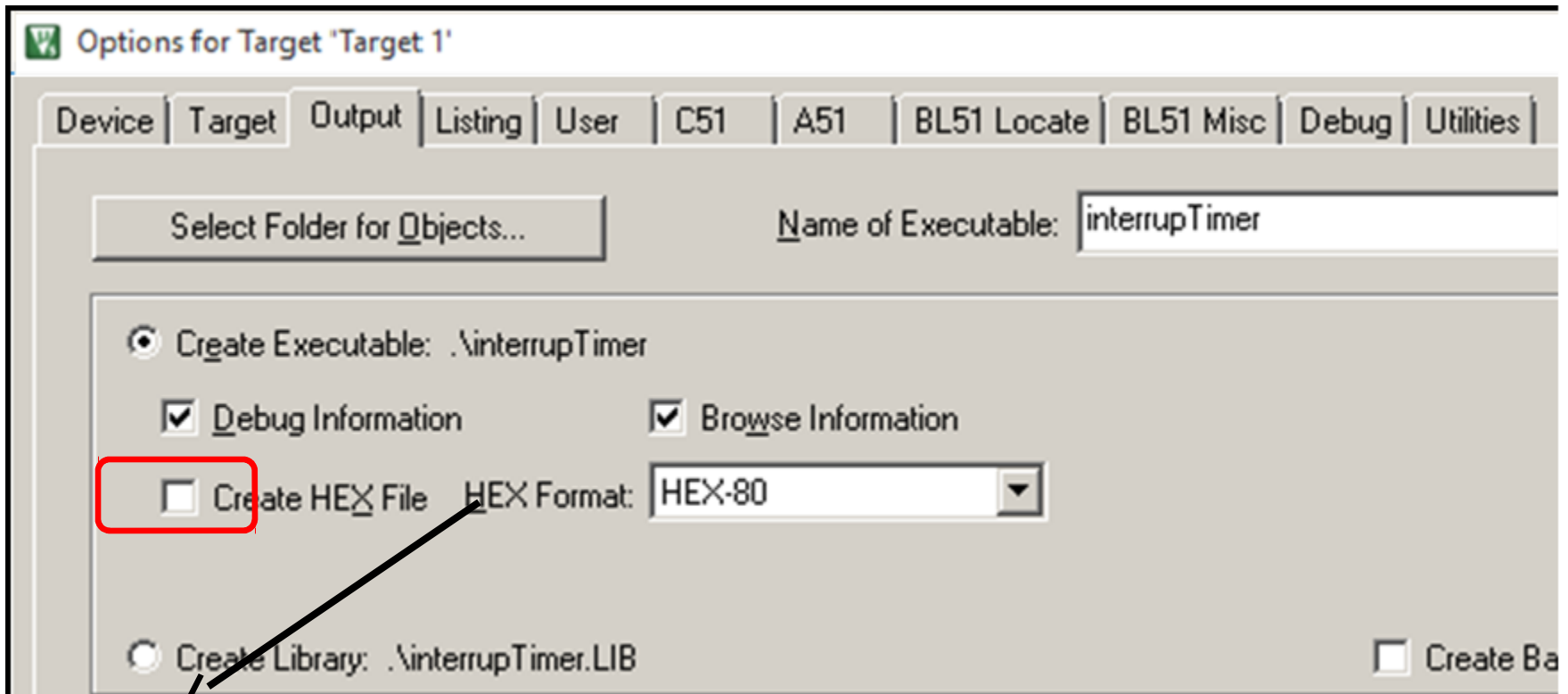


Click on this icon or press  
“Alt+F7”  
to configure the target options

# Configuring the Crystal frequency

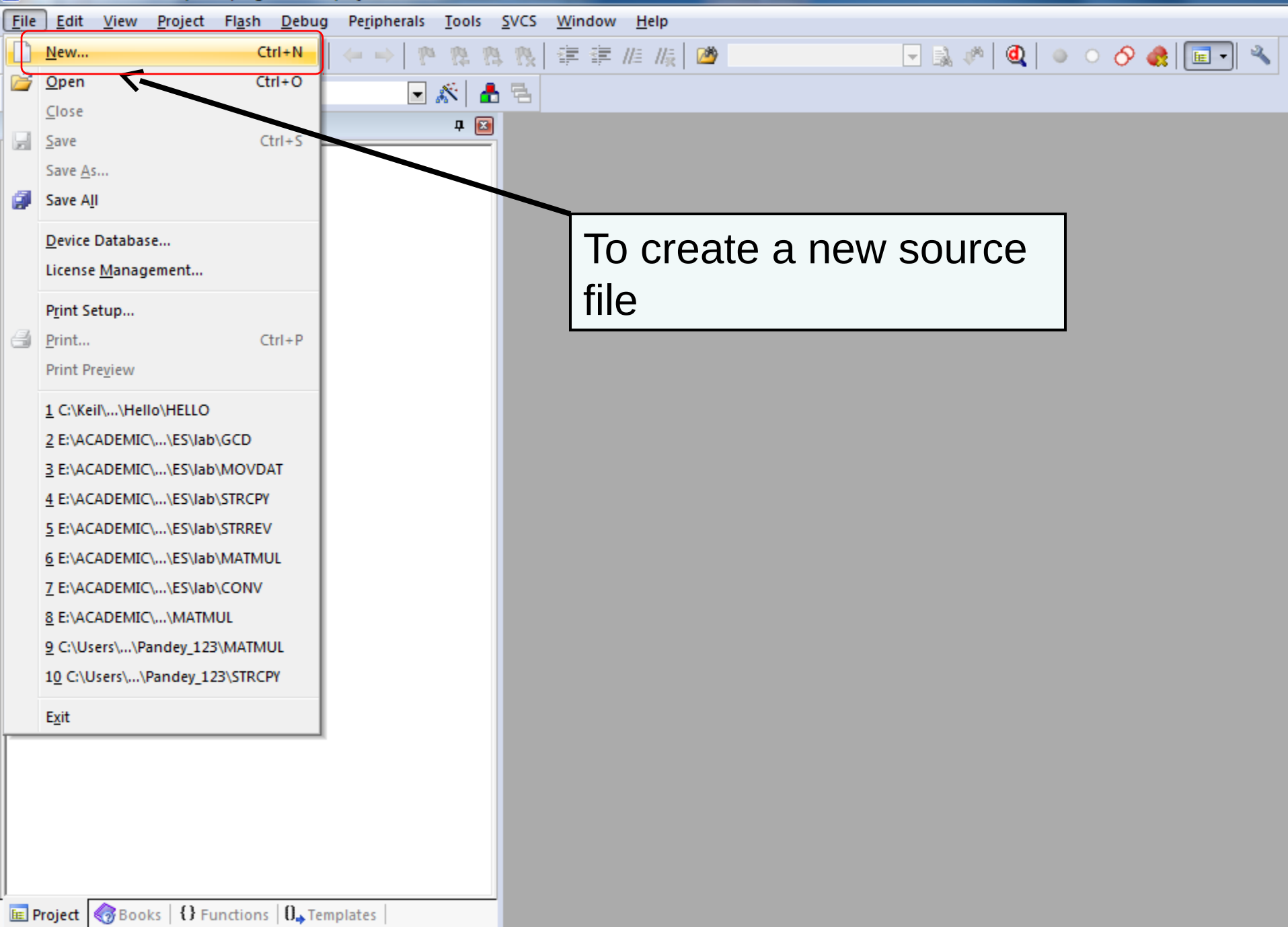


# Creating HEX file



Click this Tick box to create Hex file

Finally Click on OK to save these Options chosen for this project



1. Type here the code for your program in this window.
2. Save the file as **<<file name>>.asm** for assembly language programs) or as **<<file name>>.c** for C programs.



Project

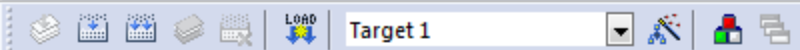
Target 1  
Source Group 1

simple\_move.asm

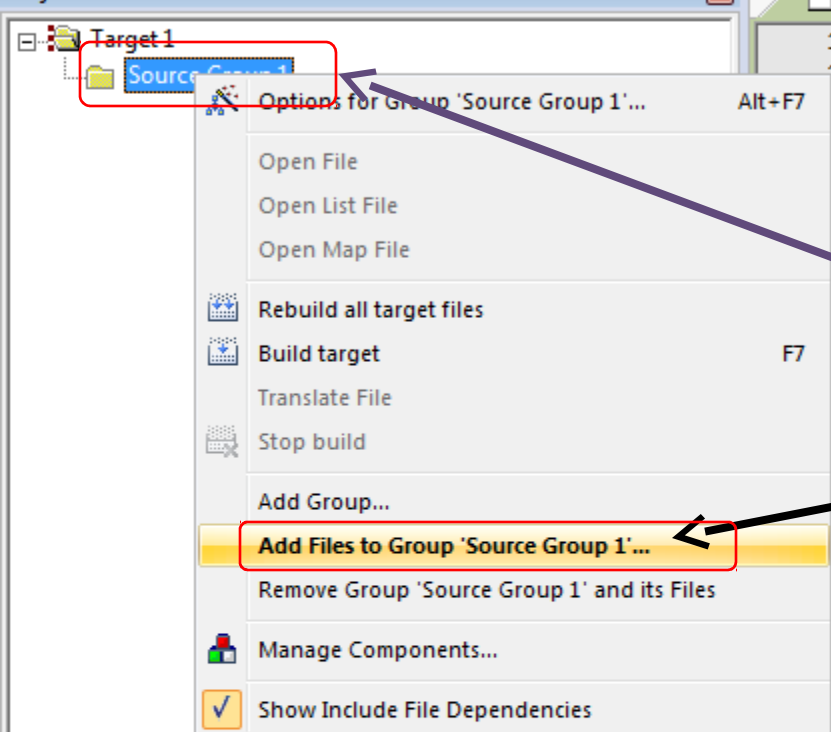
```
1  src equ 30h
2  dst equ 40h
3  cnt equ 5
4
5  mov r0,#src
6  mov r1,#dst
7  mov r2,#cnt
8
9  back:  mov a,@r0
10         mov @r1,a
11         inc r0
12         inc r1
13
14  djnz r2,back
15
16  loop:  sjmp loop
17
18  end
```

A saved assembly file  
for use with the 8051  
microcontroller family

Notice the different colors  
used for assembler  
directives, opcodes,  
registers, data, etc by the  
IDE.



Project



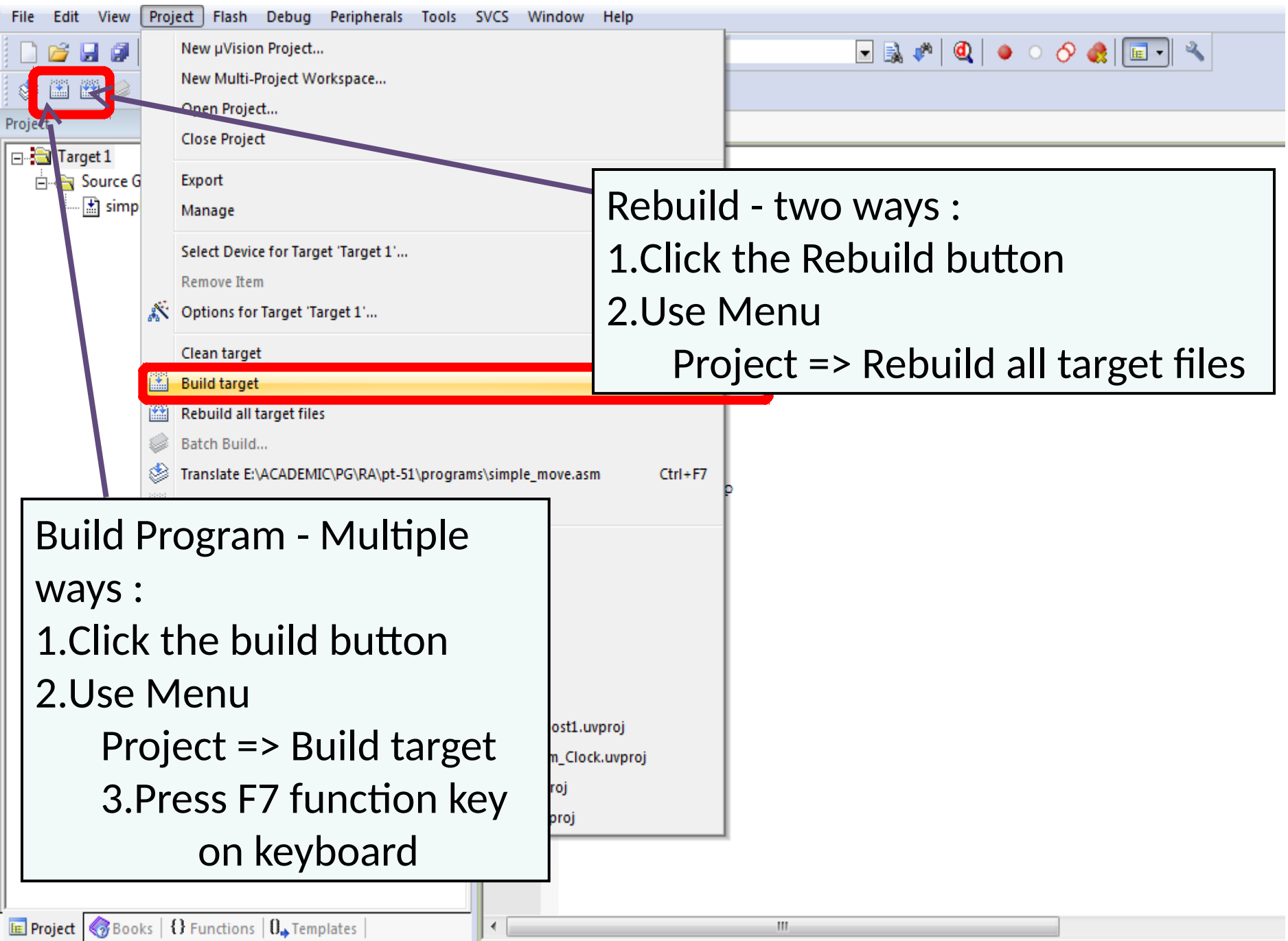
simple\_move.asm

```
1  src equ 30h
2  dst equ 40h
3  cnt equ 50h
4
5  mov r0, #src
6  mov r1, #dst
7  mov r2, #cnt
8
9  back: mov r3, r0
10      inc r3
11      inc r1
12
13      djnz r2, back
14
15  loop: stop
16
17  end
```

To compile/build the code we need to add the ".asm" file to the project.

1. Right click on Source Group 1
2. Select Add files to Group Source Group 1
3. Select the proper file in the file selection dialog box





Rebuild - two ways :

1.Click the Rebuild button

2.Use Menu

Project => Rebuild all target files

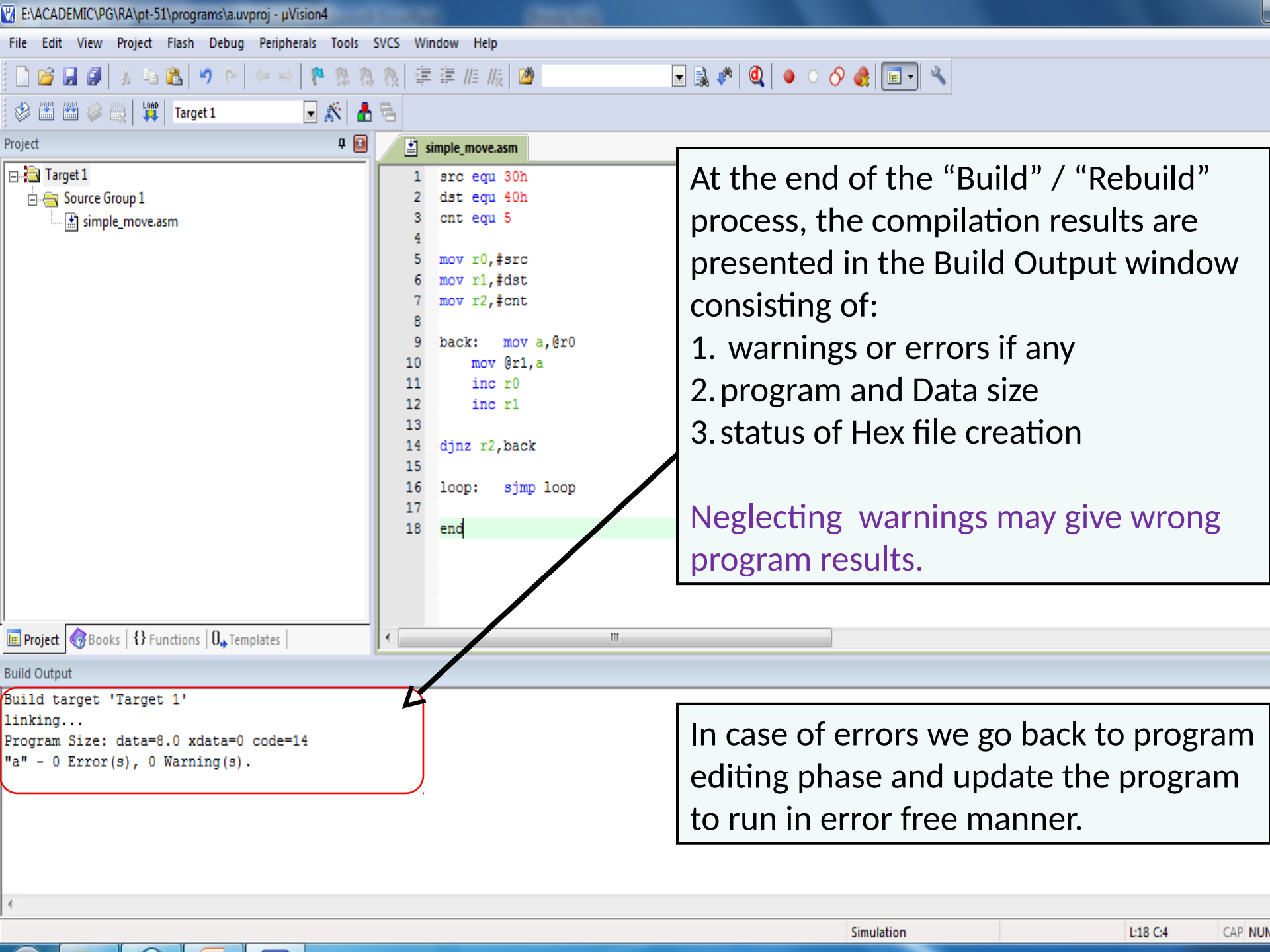
Build Program - Multiple ways :

1.Click the build button

2.Use Menu

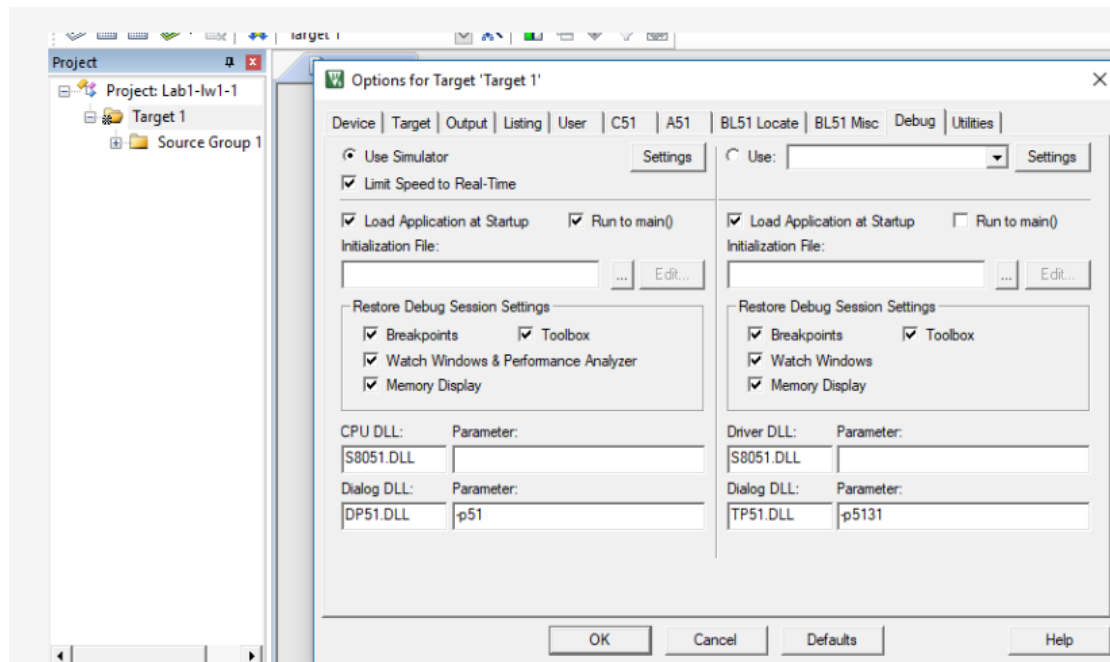
Project => Build target

3.Press F7 function key  
on keyboard



# Solving Keil Crash Issue

- If Keil  $\mu$ Vision keeps crashing on pressing the Start\stop debug session, then follow these steps.
  - Right click on the target folder (at the left pane).
  - Select Options for Target `<TargetName>`.
  - Select the Debug pane.
  - Change the Parameter field to the right of Dialog DLL with name DP51.DLL to -p51.
  - Tick the Limit Speed to Real-Time checkbox.



**Questions ?**

# Thank you

## WEL, IIT Bombay 2020

Presentation Version Information:

Date	Comments
Jan 2020	Modifications to title. Changed some screenshots to remove Atmel references. Deleted flowchart slide. Changed uVision to $\mu$ Vision.
2016	Initial version by Suryakant Toraskar, <a href="mailto:smtoraskar.iitbombay@gmail.com">smtoraskar.iitbombay@gmail.com</a>