# Microprocessors and Microcontrollers

CSE 315

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# Needed Softwares

- AVR Studio
  - https://www.microchip.com/mplab/avr-support/atmel-studio-7
  - **Atmel Studio 7.0 (build 1931) offline installer**
- This is the IDE

# Burner

- Extreme Burner
  - http://extreme-burner-avr.software.informer.com/download/
- There is also avrpal

- Loads the HEX file into microcontroller

# Needed Equipments

- Microcontroller – ATmega32
- The AVR Programmer / Loader
  - To load your code into the mc

# Writing Code

- Create New Project
- Select “GCC C Executable Project”
- Select path to save the project
  - You will later need this path for the hex file
- Then select device type
  - Search for ATmega 32
- Now you can write the program

# Compile the hex code

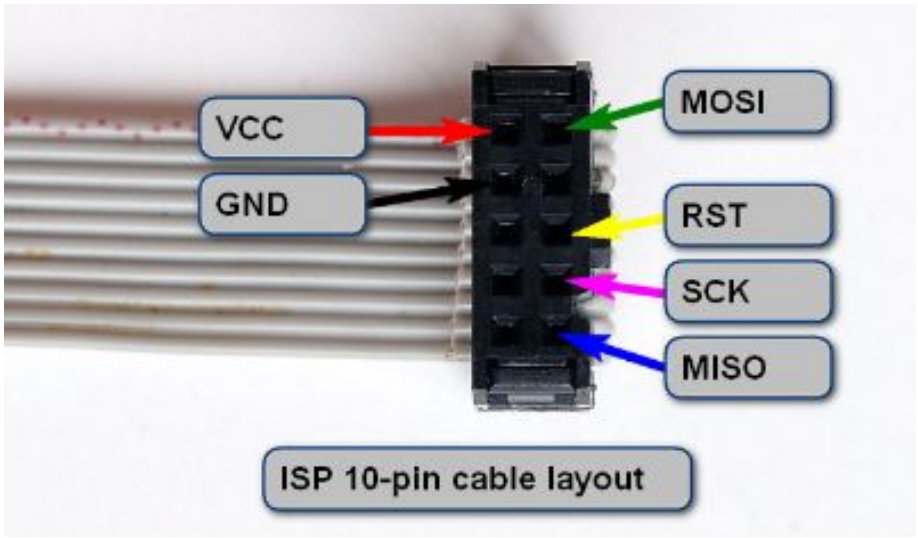
- Finish the program
- Select “Build Solution (F7)” from the Build Menu
- You will find that a hex file is generated in the Debug folder
- The name of the hex file will be the same as your project name

# Load the hex into mc

- Run Extreme Burner
- Load the hex file into it  by “Open” and locate your hex file
- From menu select Chip -> ATmega32
- Set the microcontroller on the AVR Programmer
- Connect the programmer with PC
- In extreme Burner select the menu “write” and choose “Flash”

# Connecting ATmega32 with programmer

- Following the figure connect the 6 corresponding microcontroller pins with the loader.




- Be careful about the orientation of the cable layout. The extended part goes to the right

# Setting mc in the AVR Programmer (Not needed for you)

- For the big loaders from TechshopBD
  - The upper portion (U) side goes closer to the side with the liver
  - There is a push button
  - Push it so that the yellow LED is on and the red one is off

# Complete Process of Programming a Microcontroller

1. Write the code
   - In ATMEL Studio, or other IDE

2. Compile it to a .hex file.
   - For ATMEL Studio, you will find the hex on the "Debug" folder in your project

# Complete Process of Programming a Microcontroller

3. Inserting the .hex file into the microcontroller
   - Load the hex file into burner
   - set the microcontroller on the “AVR Programmer”
   - Write

4. Set the microcontroller in the working circuit