

Atmel Studio

An Introductory Tutorial

Contents

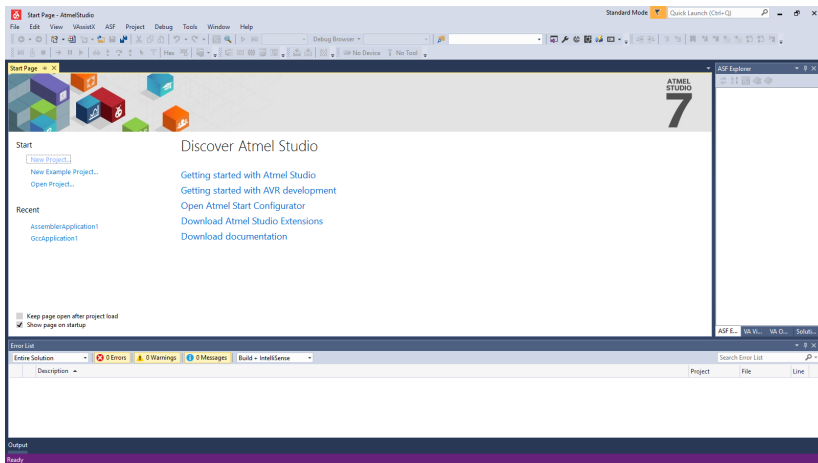
Initialize Project

Coding

Debugging

Initialize Project

Open Atmel Studio 7.0



Initialize Project

Click on New Project

The screenshot shows the 'New Project' dialog in Atmel Studio. The 'Installed' tab is selected, displaying a list of project templates. The 'GCC C ASF Board Project' is highlighted. The 'Type' is 'C/C++'. The 'Name' field is 'GccBoardProject1', 'Location' is 'c:\users\muhammad usman\Documents\Atmel Studio\7.0', and 'Solution name' is 'GccBoardProject1'. The 'Create directory for solution' checkbox is checked.

Initialize Project

Project Type

- ▶ **ASF Board Project**

The project contains built-in libraries

- ▶ **C Executable Project**

Project for bare-metal C programming

Initialize Project

Project Type

Click on Assembler

New Project?×

Recent

Installed

C/C++

Assembler

AtmelStudio Solution

Sort by: Default


AVR Assembler Project

Assembler

Search Installed Templates (Ctrl+E)

Type: Assembler

Creates an AVR 8-bit Assembler project



Name: AssemblerApplication2

Location: c:\users\muhammad usman\Documents\Atmel Studio\7.0

Solution name: AssemblerApplication2

Browse...

☒ Create directory for solution

OK

Cancel

Initialize Project

Project Type

Select AVR Assembler Project

Click OK

Device Selection



Device Family:

All



Name	App./Boot Memory (Kbytes)	Data Memory (bytes)	EEPROM (bytes)
AT90CAN128	128	4096	4096
AT90CAN32	32	2048	1024
AT90CAN64	64	4096	2048
AT90PWM1	8	512	512
AT90PWM161	16	1024	512
AT90PWM216	16	1024	512
AT90PWM28	8	512	512
AT90PWM316	16	1024	512
AT90PWM38	8	512	512
AT90PWM81	8	256	512
AT90USB1286	128	8192	4096
AT90USB1287	128	8192	4096
AT90USB162	16	512	512
AT90USB646	64	4096	2048
AT90USB647	64	4096	2048
AT90USB82	8	512	512
ATA5272	8	512	512
ATA5505	16	512	512
ATA5700M322	64	1024	2176

Device Info:

No device selected

OK

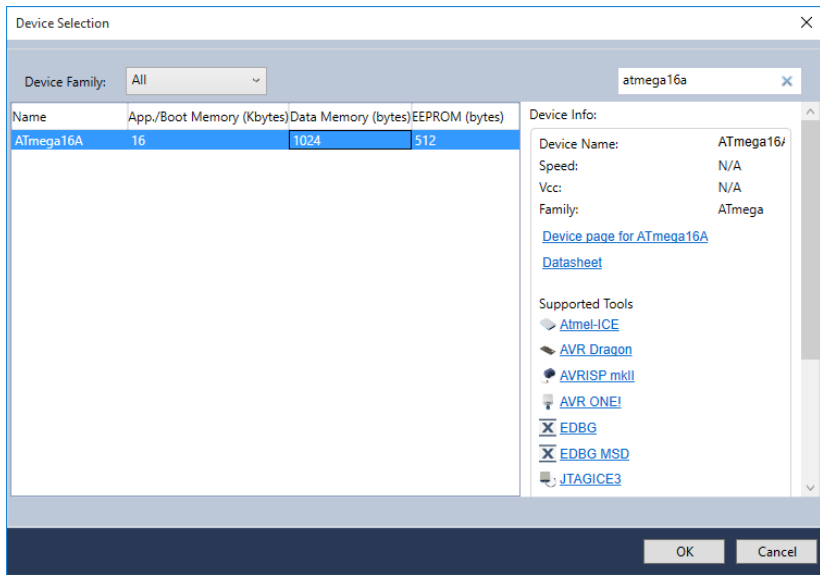
Cancel

Initialize Project

Select μ C

Type in the search box

ATmega16A

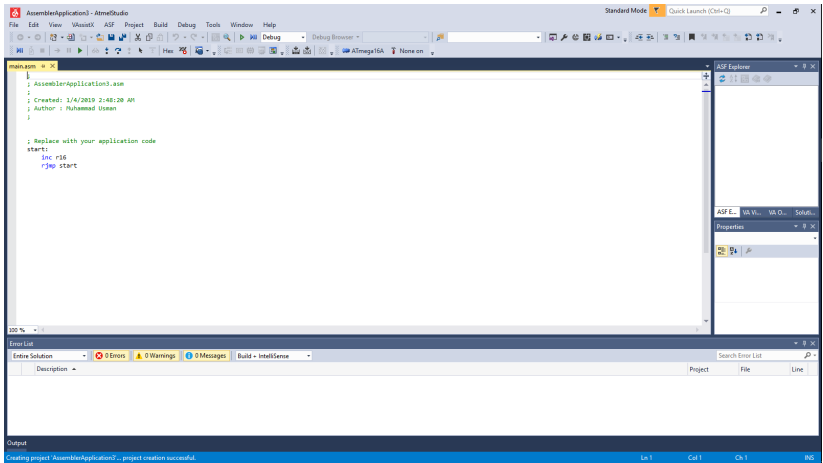


Initialize Project

Select μC

Select ATmega16A

Click OK



Coding

Editor window appears

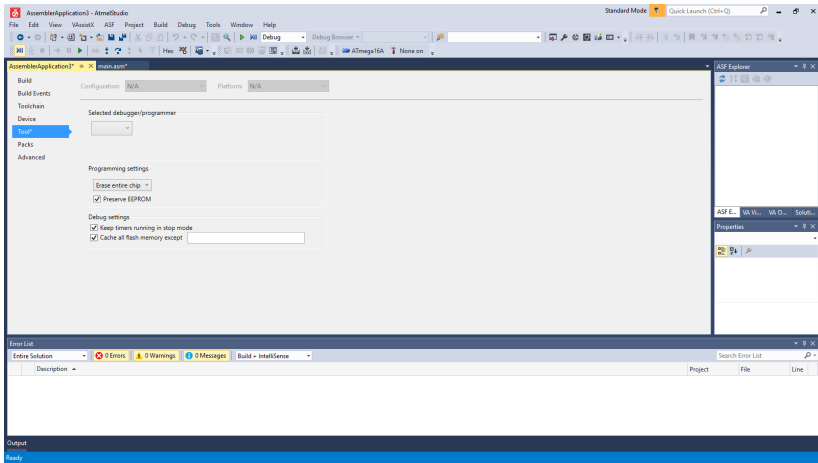
Copy & Past the lab 1 code

Save

Debugging

Select Simulator

Project > AssemblerApplicationX Properties... > Tools

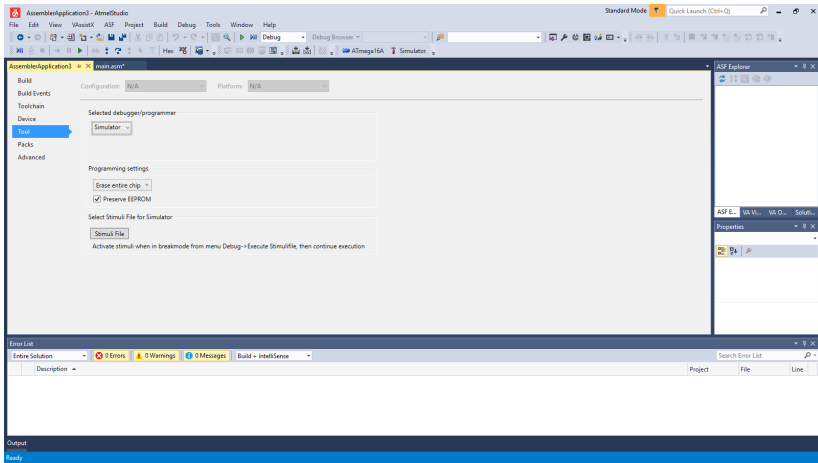


Debugging

Select Simulator

Select **Simulator** in “Selected debugger/programmer”

Save



Debugging

Initialize Debugging

Add a breakpoint

Debug > Continue

Debugging

Processor Status

Debug > Windows > Processor Status

Processor Status



Name	Value
Program Counter	0x00000004
Stack Pointer	0x0000
X Register	0x0000
Y Register	0x0000
Z Register	0x0000
Status Register	I T H S V N Z C
Cycle Counter	57789
Frequency	1.000 MHz
Stop Watch	57,789.00 μ s

Registers

R00	0x00
R01	0x00
R02	0x00
R03	0x00
R04	0x00
R05	0x00
R06	0x00

Debugging

I/O

Debug > Windows > I/O

Debugging

I/O

Select relevant port

I/O

Filter:

	Name	Value
+	ADC	Analog Comparator (AC)
+	ADC	Analog-to-Digital Convert...
		Bootloader (BOOT_LOAD)
+	CPU	CPU Registers (CPU)
		EEPROM (EEPROM)
+		External Interrupts (EXINT)
I/O	I/O Port (PORTA)	
I/O	I/O Port (PORTB)	
I/O	I/O Port (PORTC)	

Name	Address	Value	Bits	
I/O	PINB	0x36	0x04	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
I/O	DDRB	0x37	0xFF	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
I/O	PORTB	0x38	0x04	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

I/O Autos Locals Watch 1 Watch 2