* AVR Studio4.18 C Compiler로 Project 만들기

1. AVR Studio를 시작 함니다.

📾 Atmel AVR Tools	🕨 🗽 AVR Studio 4
🛅 WinAVR-20100110	🕨 👔 AVR Tools Help
	🥬 Plug-in Manager
	🛐 AVR Battery Studio
	🦌 AVR Wireless Studio

2. New Project를 버튼을 누릅니다.

Welcome to AVR S	tudio 4	
al a	New Project Open	
	Recent projects	Modified
	D:\lang\project\lot\memory\memory.aps	20-Mar-2010 15:52:17
	D:\lang\\atmega128_clcd\tm0027z_128_64\test.aps	29-Dec-2008 11:08:30
	D:\lang\project\lot\memory_test\memory.aps	12-Mar-2010 11:31:57
	D:\lang\project\ubline_mp3\ethernet\master.aps	05-0ct-2009 14:44:31
	T:\lang\project\inchon\zigbee\slave\test.aps	06-Feb-2010 11:58:57
	D:\lang\cpuplaza\avrstudio\atmega128\test\test.aps	18Jan-2010 18:23:38
	D:\lang\cpuplaza\colalfeeder\sim_prog\main.aps	17-Nov-2009 17:13:21
	🐒 D:\lang\cpuplaza\avrstudio\atmega88\test\test.aps	11-Dec-2009 22:37:05
	D:\lang\cpuplaza\avrstudio\atmega8\test\test.aps	11-Dec-2009 22:29:46
	D:\lang\\mega8_zigbee\zigbee\slave2\slave.aps	19-Aug-2008 07:42:51
Vor 4 19 694 🔽 Show di	alog at startur	
	<< <u>B</u> ack <u>N</u> ext >> Finish	<u>C</u> ancel Help

3. C Compiler를 선택 하고 TEST.C source와 TEST Project와 디렉토리를 지정함니다.

Welcom	e to AVR S	tudio 4						
	Studio 4	Create new pr Project type: Atmel AV AVR GCC Location: D:\lang\avrst	oject R Assembler		Project r test Creat Initial file test	name: te initial Me :	✓ Create	folder].c
Ver 4.18.6 프로젝트	⁸⁴ 를 만들 위	치를 지정	<< <u>B</u> ack 함니다.	<u>N</u> ext >>	Firefs		ancel (Help
폴더 찿(가보기 	avrstudio atmega32 avr128 mega8535 oc c31 c167 can128_dlcd1			? ×			
폴더: 새 폴	avrstud 더 만들기(<u>M</u>)	확인	취소				

4. 디버그및 ISP 장치를 선택 함니다.(당사 제품 ISP: ST500, JTAG : JTAG ICE)

Welcome to AVR S	tudio 4	
Simdio 4	Select debug platform and device Debug platform: AVR Dragon AVR ONE! AVR Simulator AVR Simulator 2 ICE 200 ICE 40 ICE 50 JTAG ICE JTAGICE mkll	Device: AT90CAN128 ATmega128 ATmega16 ATmega162 ATmega169 ATmega323 ATmega323 ATmega64 AT86RF401 AT89S51 AT89S52
	Port: Auto	n options next time debug mode is entered
Ver 4.18.684	<< <u>B</u> ack <u>N</u> ext >>	Finish <u>C</u> ancel Help

* AVR Studio가 실행 됩니다.

Trace Destined	T BE DOXX		
NR GOL	(A) 1		4. (a) (a)
 Decide Plane Decide Plane Entrance (DecideCast) Entrance (DecideCast) Grane Plane 			Veri Veri -0
	2 WangWaresheineWinetWinet.s	1.9	
enster Landed plugin 171938 Landed plugin AVR GCC Landed partie: C.977mprom Pier#	NewWork TrainWorksergebool Tare#41mage/20.cm		

5. Project Option을 설정 함니다.

test Project Op	tions		
200	Active	default 💌 [Edit Configuratio	INS
General	Use External Mal	akefile	
*	2, Clean/rebuild su 3, Makefile and targ	upport requires - Clean' target, rget must exist in the same folder	
Include Directories	Output File Name:	test,elf Cpu 종류, 클럭 , 컴파일 방법 설정	ब्र
	Output File	default₩	
Libraries	Device: atn	tmega128	elds
	Optimization:	000000 hz Pack Structure Members (-fpack-st	truct)
Memory Settings		Short Chains (-Ishort-enams,	
2	Create Hex File	e 🔽 Generate Map File 🔽 Generate List F	file
		확인 취소 도	움말

6. EDIT창에서 C프로그램을 작성 함니다.

AVR Studio - [D:WlangWavrstudioWtestWtest.c +]				
: 🛅 Elle Project Build Edit ⊻iew Iools Debug Window Help				- 8×
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	T T			
: Trace Disabled 🔹 🗞 👷 👞 木 🗄 📾 📾 🤲 🤟 🕼 🕮 😰 😰 😵 🗙 🔅				
AVB GCC ··································		I/O View		▼ ×
B Test (default)+ // 걸 위사 : www.cpupiaza.com R ← Source Fles // 컴파일러 : 4VB Studio				
Stest,c // 기도 웨더		Name V	/alue	^
		ANALOG_COMPA		
G Other Files #include <stdic.b></stdic.b>		BOOT_LOAD		
#include <storb.m <br="">#include <storb.m <="" td=""><td></td><td></td><td></td><td></td></storb.m></storb.m>				
#include "avr/jo.h"		EXTERNAL_INTE		=
#include "avr/interrupt.h "		≝ ∰ JTAG ∎ 📑 MISC		
//				
//[참고] PORT B를 출력으로 설정하고 떨스를 출력한다.				
int main(void)				
// PortB 설정				
PORTBELXTT; // 포트b 활력 [DORBELXTT; // 포트b 활력 설정		PORTG		
while(1){ PORTB=0x00; // 포트B 출력 0				~
PORTB=Dxff; // 포트B 콜럭 1		Name Address	Value Bits	
	~			
	>			
D:WlangWavrstudioWtestWtest,c *	4 Þ			
Message	▼ X			
Loaded Jugin AVR GCC				
Loaded partilie: C:\Program Files\Atmel\Atmel\AVR Tools\ParDescriptionFiles\ATmega128,xml				
	>			
🔄 Build 🕕 Message 🖼 Find In Files 🗔 Breakpoints and Tracepoints				
ATmega128	JTAG ICE	Auto 🕘 Ln 14	, Col 1 CAP	NUM OVR

*. 소스 코드



7. C Source 프로그램을 컴파일 한후 에러를 확인 함니다.

AVR Studio - [test.c]								
ile <u>P</u> roject 📔	<u>B</u> ui	ild	<u>E</u> dit	<u>V</u> iew	<u>T</u> ools	<u>D</u>		
i 🗋 💕 🛃 🕼 🙂		<u>B</u> u	bliu		F7			
Trace Disabled	Rebuild <u>A</u> ll							
AVR GCC		Вι	uild an	d <u>R</u> un	Ctrl+F7			
🖃 😴 test (default)+	Compil				Alt+F7	1		
🖨 🚖 Source Fil		СІ	lean		F12			
test.c. C3 Header Fil		E>	kport M	lakefile				

Build	∀ X
Data: 0 bytes (0.0% Full) (.data + .bss + .noinit) 에러 확인	•
Build succeeded with 0 Warnings	
<	2
Build O Message Rind in Files Breakpoints and Tracepoints	

8. Conect to the Selected AVR Programmer 버튼을 클릭함니다.

*	AVR	Studi	0 -	[D:1	¥lang	l₩avr	stud	lio₩	tes	t₩te	est.	c]			
8	<u>)</u> <u>F</u> ile	e <u>P</u> roj	ect	<u>B</u> uil	d <u>E</u> di	t <u>∨</u> ie	w 1	ools	D	¢bug	V	<u>/</u> ind	ow	<u>H</u> e	lp
8 [) 📂		U	X	te (2	a 4	6.	5	.	: (* *	1	%	%	1/6	+
1	Ггасе	Disable	d		• %	× ,0	<u>+</u>	不	Con	AVB		F5	2	AUTO	ł
	B GCI	<u>~</u>					- >								

- * 장치요구시 아래 내용 설정
 - 1. USB-ISP 경우(STK500)

Connect failed - Select AVR Programmer						
Platform:	Port:					
AVR ONE! STK600 QT600 AVRISP mkli STK500 JTAGICE mkli AVR Dragon AVRISP	Auto COM1 COM2 COM3 COM4	Connect Cancel Baud rate: 19200 (Default)				
Tip: To auto-connect to the programmer used last time, press the 'Programmer' button on the toolbar. Note that a tool cannot be used for programming as long as it is connected in a debugging session. In that case, select 'Stop Debugging' first.						
STK500/AVRISP		×				
An AVRISP with firmware versior to this installation of AVR Studio i perform an upgrade, or Cancel to guaranteed if an upgrade is not p	12,07 has been detected. The firn is 2,04, Press OK to launch the u o continue without upgrading. NO performed.	nware version corresponding ograde program to TE! Correct operation is not				
	확인 취소 💌					
		취소 버튼 누				

2. USB-JTAG 경우(JTAG ICE)

Connect failed - Select A	/R Programmer	
Platform: STK600 QT600 AVRISP mkll STK500 JTAGICE mkll AVR Dragon AVRISP UTAGICE Tip: To auto-connect to the programm button on the toolbar. Note that a tool cannot be used for pr a debugging session. In that case, se Disconnected Mode	Port: Auto CDM1 CDM2 CDM3 CDM4 rer used last time, press the 'Programmer' ogramming as long as it is connected in lect 'Stop Debugging' first.	Cancel Baud rate: 19200 (Default)

3. ATMEL AVRISP mkii 경우

Connect failed - Select AVR Programmer	
Platform: Port: AVR ONE! STK600 QT500 STK500 JTAGICE mkII STK500 JTAGICE mkII STK500 AVRISP STK500 Tip: To auto-connect to the programmer used last time, press the 'Programmer' button on the toolbar. Note that a tool cannot be used for programming as long as it is connected in a debugging session. In that case, select 'Stop Debugging' first. Disconnected Mode	Connect Cancel Baud rate: 19200 (Default)

4. ATMEL사의 JTAGICE mkii 경우

Connect failed - Select AVR Programmer				
Platform: AVR ONE! STK600 QT600 AVRISP mkll STK500 UTAGICE mkll AVR Dragon AVRISP	Port: Auto USB COM1 COM2 COM3 COM4	Cancel Baud rate: 19200 (Default)		
AVR Dragon AVRISP Tip: To auto-connect to the programmer used last time, press the 'Programmer' button on the toolbar. Note that a tool cannot be used for programming as long as it is connected in a debugging session. In that case, select 'Stop Debugging' first. Disconnected Mode				

9. Main 항목에서 CPU종류 를 설정후 프로그램 장치 모드를 확인 합니다.

STK500 in ISP mode vith ATmega128	
Main Program Fuses LockBits Advanced HW Setting	s HW Info Auto
Device and Signature Bytes ATmega128 Signature not read	<u>E</u> rase Device <u>R</u> ead Signature
Programming Mode and Target Settings	
ISP mode	Settings., ISP Frequency: 460,8 kHz
ATxmegaxxx 시리즈 사용시 PDI mod	e
The selected device does Getting isp parameter., SD=0x01 ., OKnot support ISP program	ming
	t

- *. ISP사용시 Main 항목 Setting에서 Freqence를 확인후 적정 주파수로 설정해 주세요.
 - 당사 ISP : 230 460KHz, Atmel 정품 : 2MHz 이상

Target Settings		
ISP Clock ISP Freq: 460.8 kHz	Attainable: 460.8 kHz	Read Write
Note: The ISP frequency m	ust be less than 1/4 of the ta	Close

10. Fuses 항목을 아래와 같이 설정 한후 Program 함니다.

5	GTK500 in ISP m	ode with ATm	ega128	
	Main Program	Fuses LockBits	Advanced HW Settings HW Info Auto	
	Fuse	Value		^
	M103C			
	WDTON			
				=
	SPIEN			
	EESAVE			
	BOOTSZ	Boot Flash size	=4096 words start address=\$F000 🔹	
	BOOTRST		,	
	СКОРТ	v		~
	EXTENDED			
		0×09 0×7F		
		0.511		
	🗹 Auto read			
	🔽 Smart warning	js		
	🗹 Verify after pro	ogramming	Program Verity	Read
		ing model OKI		~
	Entering programm Reading fuses addi	ing mode,, UK! ress 0 to 2,, 0x7F,	0x89, 0xFF OK!	
	Leaving programmi	ng mode,, OK!		
				×

STK500 in ISP m	ode with ATmega128	
Main Program	Fuses LockBits Advanced HW Settings HW Info Auto	
Fuse	Value	^
JTAGEN		
SPIEN		
EESAVE		
BOUISZ	Boot Flash size=409b words start address=\$F000	
BODLEVEL	Brown-out detection level at VCC=4.0 V	
BODEN		
SUT_CKSEL	Ext, Crystal/Resonator High Freq.; Start-up time: 16K CK + 64 🛒	~
EXTENDED	0xFF	
HIGH	0×89	
LOW	0×7F	
	Fuses 프로그램	
beer otub	/	
Smart warning	с К	
Verifv after pro	gramming Program Verify Read	ן ב
Entering programmi	ng mode, , OK!	~
Writing tuses addres Reading tuses addr	ss 0 to 2,, 0x7F, 0x89, 0xFF,, 0K! ess 0 to 2,, 0x7F, 0x89, 0xFF,, 0K!	
Fuse bits verification	n., OK	
Leaving programmi	ily mode,, on:	~

11. Program 항목에서 프로그램할 파일(test.hex)를 지정함니다.

STK500 in ISP mode with ATmega128	
Main Program Fuses LockBits Advanced HW Settings HW Info Auto	_
Erase Device	
Verify device before flash programming	
_Flash	
 ○ Use Current Simulator/Emulator FLASH Memory Input HEX File D:\#lang\#project\#lot\#memory\#default\#tcps,hex 	
Program Verify <u>R</u> ead	
EEPROM Use Current Simulator/Emulator EEPROM Memory Input HEX File	
Pr <u>o</u> gram Ver <u>i</u> fy Re <u>a</u> d	
ELF Production File Format	
Input ELF File:	
Save From: FLASH EEPROM FUSES LOCKBITS Fuses and lockbits Program Save before saving to ELF	
Gietting isp parameter,, SD=UxU1 ,, OK	
	~

* Test.hex 파일은 작업 디렉토리 폴더의 default 방안에 있습니다.

열기		?×
찾는 위치([):	: 🗀 default 🕑 🚱 🌮 🖽 🗸	
D Recent	Constant of the second	
() 바탕 화면		
내 문서		
및 내 컴퓨터		
내 네트워크 환경	파일 이름(N): tcps,hex 약 열7 파일 형식(T): Flash Intel Hex Files (★,hex;★,a90) 약 추	100 1

12. Program 항목에서 Program 버튼을 클릭하여 test.hex를 프로그램 함니다.

STK500 in ISP mode with ATmega128	X
Main Program Fuses LockBits Advanced HW Settings HW Info Auto	
Erase Device	
Erase device before flash programming Verify device after programming	
c Flash	
Use Current Simulator/Emulator FLASH Memory	
Use Current Simulator/Emulator EEPROM Memory	
Input HEX File	
Program Verify Read	
ELF Production File Format	
Program Save Save Saving to ELE	
Reading FLASH OK! FLASH contents is equal to file OK	
Leaving programming mode,, OK!	~

13. Program 항목 활용하기

*. Program항목의 ELF Production File Format를 사용하면 FUSE, LOCKBITS, FLASH 파일, EEPROM 파일 항목을 설정 저장 한후 생산시 활용 할수 있다.

