

# 임베디드 MCU 프로그래밍

## 초음파 센서 모듈

Architecture and Compiler for Embedded System LAB.  
School of Electronics Engineering, KNU, KOREA



# 초음파 센서 모듈



VCC = +5VDC

Trig = Trigger input of Sensor

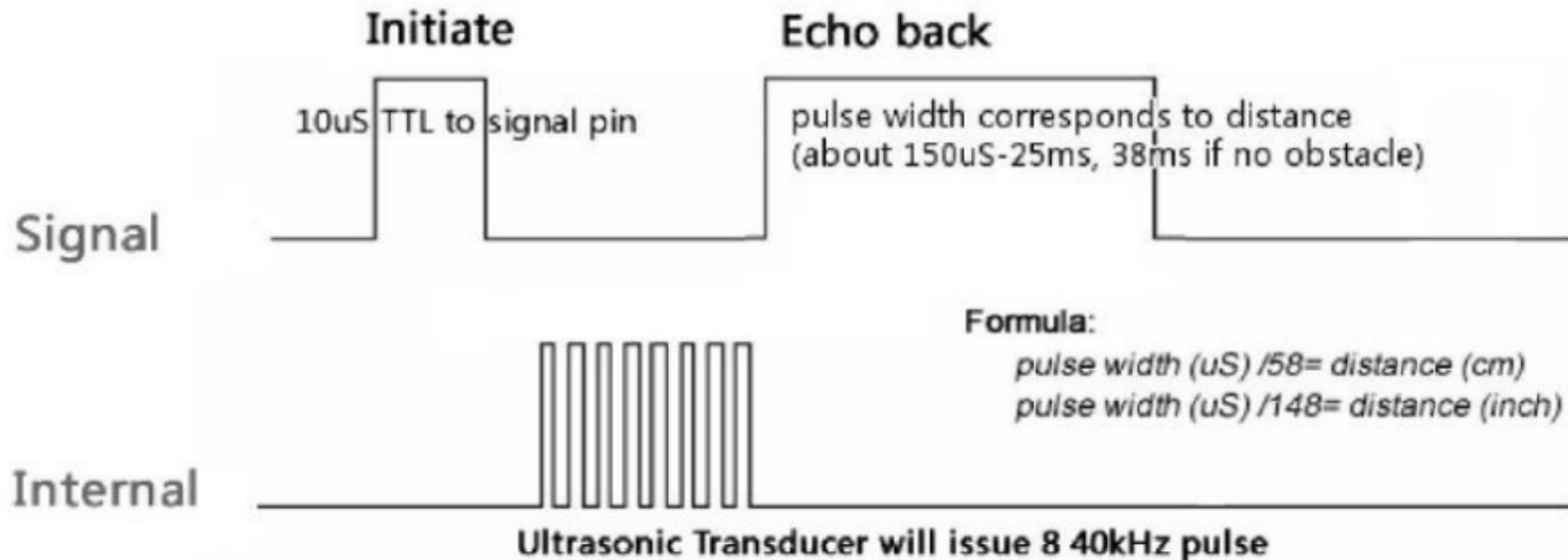
Echo = Echo output of Sensor

GND = GND

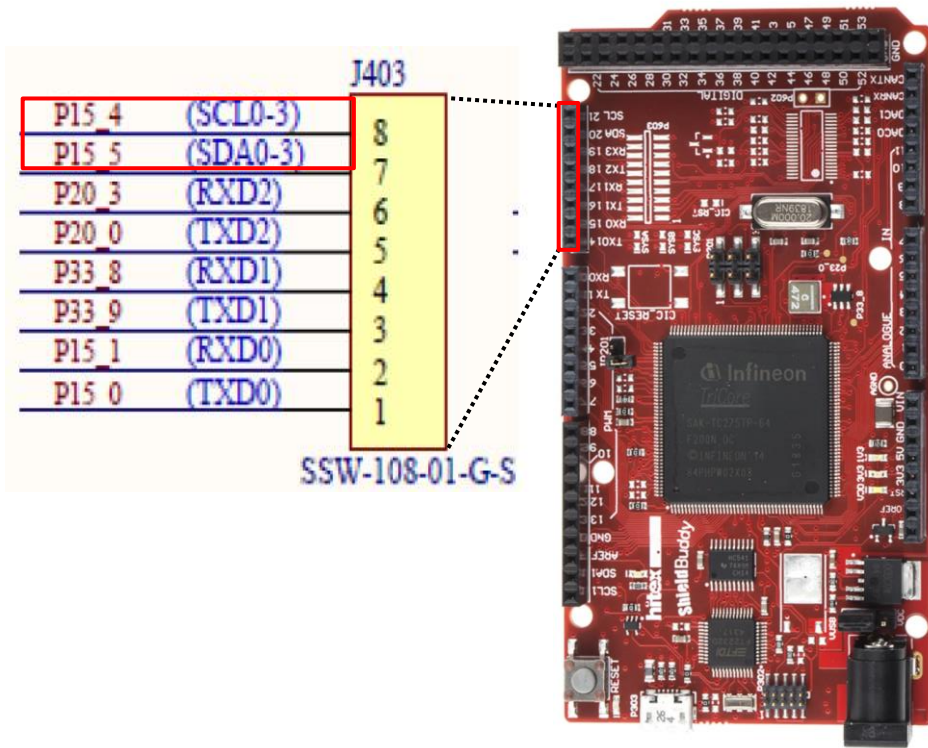
# 초음파 센서 모듈

Time = Width of Echo pulse, in  $\mu\text{s}$  (micro second)

- Distance in centimeters = Time / 58
- Distance in inches = Time / 148
- Or you can utilize the speed of sound, which is 340m/s



# Hitex ShieldBuddy TC275



External Interrupt

Pin	Symbol	Ctrl	Type	Function
136	P15.3	I	MP / PU1 / VEXT	General-purpose input
	TIN74			GTM input
	ARX0B			ASCLIN0 input
	SCLK2A			QSPI2 input
	RXDCAN1A			CAN node 1 input
	P15.3	O0		General-purpose output
	TOUT74	O1		GTM output
	ATX0	O2		ASCLIN0 output
	SCLK2	O3		QSPI2 output
	END03	O4		MSC0 output
	EN01	O5		MSC0 output
	-	O6		Reserved
	-	O7		Reserved
137	P15.4	I	MP / PU1 / VEXT	General-purpose input
	TIN75			GTM input
	MRST2A			QSPI2 input
	REQ0			SCU input
	SCL0C			I2C0 input
	P15.4	O0		General-purpose output
	TOUT75	O1		GTM output
	ATX1	O2		ASCLIN1 output
	MRST2	O3		QSPI2 output
	-	O4		Reserved
	-	O5		Reserved
	SCL0	O6		I2C0 output
	CC62	O7		CCU60 output

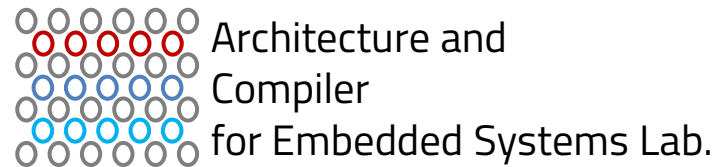
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## 1. 프로그래밍

- ① Trigger 출력.
- ② Timer Start.
- ③ External interrupt falling Edge Detection Interrupt
- ④ Timer Stop
- ⑤ Count Read
- ⑥ 거리 계산
- ⑦ External Interrupt가 Timer Max나 정해진 시간까지 발생하지 않을 시 초음파 센서 초기 모드로 전환.

# Q & A

**Thank you for your attention**



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