JB100 Zigbee Network 구성하기

http://www.mangoboard.com/ http://cafe.naver.com/embeddedcrazyboys Crazy Embedded Laboratory

Document History

Revision	Date	Change note
Init	2015-08-14	전종인

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1. 준비물

보드를 준비합니다.

- JB100 Zigbee Module (2.4GHz 지그비 모듈): 2ea
- Zigbee Module Debug Expansion Board (CM-Zx-Debug) : 1ea
- Zigbee Download Module [CM-CC-DEBUGGER] : 1ea
- USB to UART Board [CM-Zx-Serial] : 2ea
- 10 Pin Flat Ribbon Cable : 1ea
- 8Pin Cable : 2ea
- Mini USB cable : 1ea



2. 이미지 Write하기

이미지와 소스는 아래 링크 된 것을 다운로드 합니다.

http://crztech.iptime.org:8080/Release/Zigbee/JB100-Zigbee/JB100-ZNP-Test-Image/ 에서 JB100-CC2530ZNP-Test.hex 파일을 다운로드 합니다. 보드와 PC는 아래와 같이 연결합니다.



Zigbee Download Module [CM-CC-DEBUGGER] 로 다운로드를 합니다.

💠 Texas Instruments SmartRF®	Flash Programmer	
TEXAS INSTRUMENTS	What do you want to progr Program CCxxxx SoC or MSP430 System-on-Chip MSP430	am?
	EB ID Chip type E 0392 CC2530 0 Fast Flash image: D:\CRZ_보드\RF-M Read IEEE Write IEEE Coration	EB type EB firmware ID EB firmware rev CC Debugger 05CC 0044 odules\Mango-Zigbee모듈보드\DOC\메뉴얼认B1002 hary ⓒ Secondary IEEE 0x gramming the chip
	View Info Page Actions C Erase Erase and program Erase, program and verify Append and verify Verify against hex-file Read flash into hex-file	Flash lock (effective after program/append): Write protect: Block debug commands (incl. read access) NB: Cannot "Append and verify" when set!
	CC2530 ·	Perform actions ID0392: Erase, program and verify OK

3. 테스트 하기

http://crztech.iptime.org:8080/Release/Zigbee/JB100-Zigbee/JB100-ZNP-Host-Example/ 에서 Host 컨트롤하는 프로그램을 다운로드 받습니다.

GNU GCC로 컴파일을 해야 하므로 Linux가 설치된 PC나 Cygwin을 설치하면 됩니다. Linux PC 설치가 되어 있어 linux PC에 연결하여 테스트를 진행 해 보겠습니다. 환경은 Cygwin + MINGW 설치 또는 Linux PC 에서 작업

JB100 보드는 최소 2개 이상 필요합니다.



3.1. 지그비 네트워크 구성 통신하기(Coordinator, Router)

\$cd examples/dataSendRcv/build/gnu/

\$ make

컴파일을 하면 이미지가 만들어집니다.

"Makefile" 수정을 하여 ARM용으로도 만들 수 있습니다.

ARM용 : CROSS_COMPILE=/opt/arm-2010q1/bin/arm-none-linux-gnueabi-Linux PC용 : CROSS_COMPILE=/usr/bin/

\$ sudo ./dataSendRcv.bin /dev/ttyUSB0

위와 같이 명령을 입력하면 아래와 같이 메시지가 나옵니다. 1대는 COORDINATOR로 설정합니다.

```
Do you wish to start/join a new network? (y/n)

y

Resetting ZNP

ZNP Version: 2.6.2

Enter device type c: Coordinator, r: Router, e: End Device:

c

Enter channel 11-26:

26

EndPoint: 1

Network Starting

Network Starting
```

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Network Starting Network Started Network up

Available devices: Type: COORDINATOR NwkAddr: 0x0000 Number of Endpoints: 1 Active Endpoints: 0x01

Enter DstAddr:

Device type은 Coordinator, 채널은 26번을 선택

또 다른 보드는 Router로 구성을 합니다.

\$ sudo ./dataSendRcv.bin /dev/ttyUSB1

위와 같이 입력하면 아래와 같이 메시지가 나옵니다. Do you wish to start/join a new network? (y/n) y Resetting ZNP ZNP Version: 2.6.2 Enter device type c: Coordinator, r: Router, e: End Device: r Enter channel 11-26: 26 EndPoint: 1 Network Discovering Network Authenticating Network Joined Network up Available devices: Enter DstAddr: 0x0000 Enter DstEndpoint: 0x01 Enter message to send or type CHANGE to change the destination

or QUIT to exit
CHANGE
Available devices:
Type: COORDINATOR
NwkAddr: 0x0000
Number of Endpoints: 1
Active Endpoints: 0x01
Type: ROUTER
NwkAddr: 0x49C9
Number of Endpoints: 1
Active Endpoints: 0x01
Router 디바이스 선택 "r" 입력, 채널은 같은 26번 선택
"Enter DstAddr"은 COORDINATOR 보드의 NwkAddr 어드레스 주소를 입력합니다.

"Enter DstEndpoint"은 COORDINATOR보드의 Number of Endpoints 값인 0x1을 입력합니다.

Available devices: Enter DstAddr: **0x0000** Enter DstEndpoint: **0x01**

그리고, 자기 자신의 network address를 알려면 "CHANGE"를 입력하면, 현재 구성된 네트워크 구성을 보여 줍니다.

Enter message to send or type CHANGE to change the destination or QUIT to exit **CHANGE** Available devices: Type: COORDINATOR NwkAddr: 0x0000 Number of Endpoints: 1 Active Endpoints: 0x01 Type: ROUTER NwkAddr: 0x49C9 Number of Endpoints: 1

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Active Endpoints: 0x01

수행한 결과를 아래 메시지가 보여 줍니다.

```
[icanjji@icanjji-Samsung-DeskTop-System gnu]$ sudo ./dataSendRcv.bin /dev/ttyUSB1
[sudo] password for icanjji:
Do you wish to start/join a new network? (y/n)
У
Resetting ZNP
ZNP Version: 2.6.2
Enter device type c: Coordinator, r: Router, e: End Device:
r
Enter channel 11-26:
26
EndPoint: 1
Network Discovering
Network Authenticating
Network Joined
Network up
Available devices:
Enter DstAddr:
0x0000
Enter DstEndpoint:
0x01
Enter message to send or type CHANGE to change the destination
or QUIT to exit
CHANGE
Available devices:
Type: COORDINATOR
NwkAddr: 0x0000
Number of Endpoints: 1
Active Endpoints: 0x01
Type: ROUTER
NwkAddr: 0x49C9
Number of Endpoints: 1
```

Active Endpoints: 0x01
Enter DstAddr:
0x0000
Enter DstEndpoint:
0x1
Enter message to send or type CHANGE to change the destination
or QUIT to exit
Hello CoordiNator
Message transmited Succesfully!
Enter message to send or type CHANGE to change the destination
or QUIT to exit
Incoming Message from Endpoint 0x01 and Address 0x0000:
Hello Router
Enter message to send or type CHANGE to change the destination
or QUIT to exit:

서로 Packat을 주고 받을 수 있습니다.

<터미널 창 2개 캡처한 화면>

sudol password for icaniii:	[icanjil@icanjil-Samsung-DeskTop-System znp-host-framework]& cd examples/
Do you wish to start/join a new network? (v/n)	cmdLine/ dataSendRcv/ nwkTopplogv/ strvDisc/ stressTest/
y	[icanjji@icanjji-Samsung-DeskTop-System znp-host-framework]\$ cd examples/dataSendRcv/build/
Resetting ZNP	gnu/ tirtos/
ZNF Version: 2.6.2	[icanjji@icanjji-Samsung-DeskTop-System znp-host-framework]\$ cd examples/dataSendRcv/build/gnu/
Enter device type c: Coordinator, r: Router, e: End Device:	[icanjji@icanjji-Samsung-DeskTop-System gnu]\$ vi Makefile
	[icanjji@icanjji-Samsung-DeskTop-System gnu]\$ sudo ./dataSendRcv.bin /dev/ttyUSB0
Enter channel 11-26:	[sudo] password for icanjji:
26	Do you wish to start/join a new network? (y/n)
EndPoint: 1	
Network Discovering	Resetting ZNP
Network Authenticating	ZNP Version: 2.6.2
Network Joined	Enter device type c: Coordinator, r: Router, e: End Device:
Network up	e han been here the the second of the second s
	Enter channel 11-26:
	26
Available devices:	EndFoint: 1
Enter DatAddr:	Network Starting
02000	Network Starting
Enter DatEndpoint:	Network Starting
0x01	Network Started
Enter message to send or type CHANGE to change the destination	Network up
or QUIT to exit	
CHANGE	
	Available devices:
Available devices:	Type: COORDINATOR
Type: COORDINATOR	Nyklddr: 0x0000
NwkAddr: 0x0000	Number of Endpoints: 1
Number of Endpoints: 1	Active Endpoints: 0x01
Active Endpoints: 0x01	
	Enter DatAddr:
Type: ROUTER	0x49C9
NwkAddr: 0x49C9	Enter DatEndpoint:
Number of Endpoints: 1	0x01
Active Endpoints: 0x01	Enter message to send or type CHANGE to change the destination
	or guit to exit
Enter DetAddr:	zdoFrocess: CMD0:45, CMD1:ca, not handled
0x0000	
Inter DetEndpoint:	New device joined network.
0x1	NwkAddr: 0x49C9
Enter message to send or type CHANGE to change the destination	Number of Endpoints: 1
or QUIT to exit	Active Endpoints: 0x01
Hello CoordiNator	Hello
Message transmited Succesfully!	Incoming Message from Endpoint 0x01 and Address 0x49C9:
Enter message to send or type CHANGE to change the destination	Hello CoordiNator
or QUIT to exit	
	Enter message to send or type CHANGE to change the destination
Incoming Message from Endpoint 0x01 and Address 0x0000:	or QUIT to exit:
Hello Router	Hello Router
	Message transmited Succesfully!
Enter message to send or type CHANGE to change the destination	Enter message to send or type CHANGE to change the destination
or QUIT to exit:	e guir to exit