

JB100 Zigbee Network 구성하기

<http://www.mangoboard.com/>

<http://cafe.naver.com/embeddedcrazyboys>

Crazy Embedded Laboratory

Document History

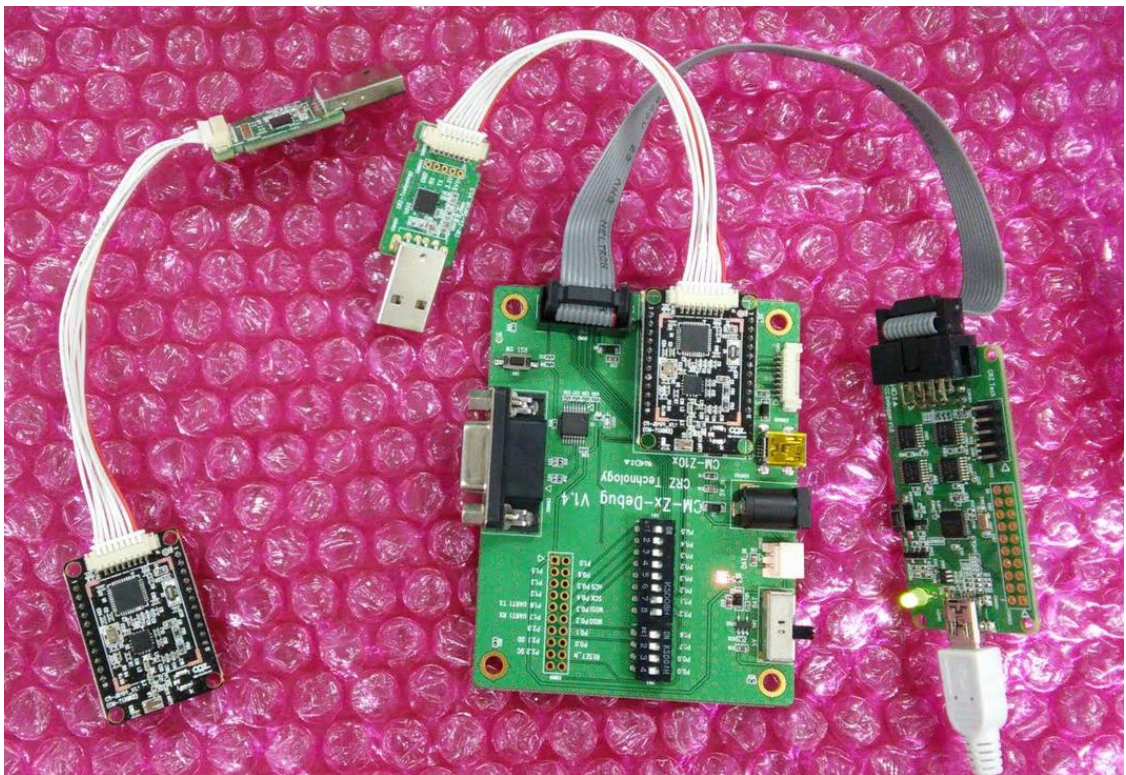
Revision	Date	Change note
Init	2015-08-14	전종인

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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.



보드와 컴퓨터 연결

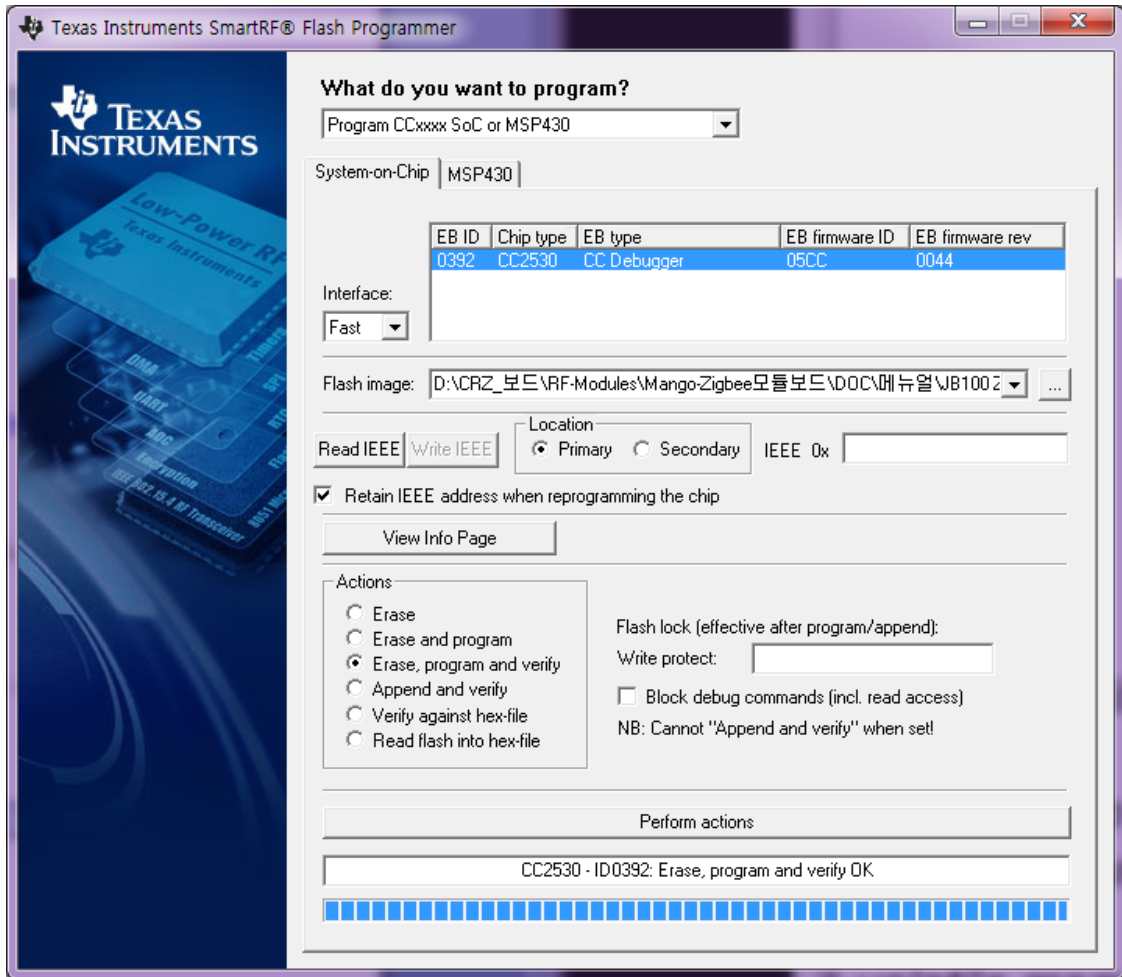
그림과 같이 연결합니다.



USB



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



3. 테스트 하기

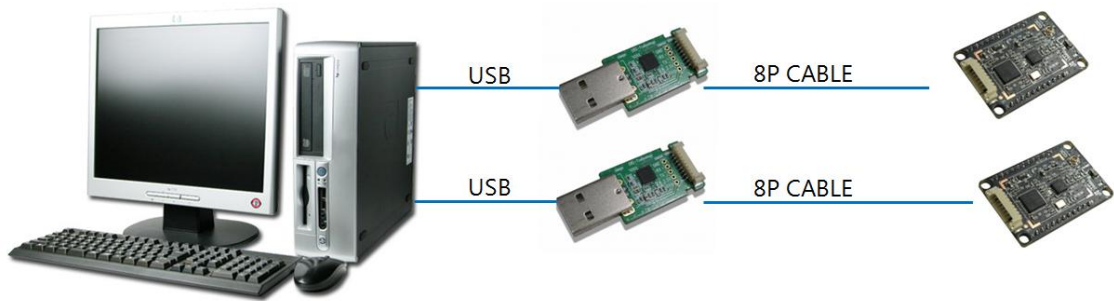
<http://crztech.iptime.org:8080/Release/Zigbee/JB100-Zigbee/JB100-ZNP-Host-Example/>

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
```

```
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

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)
```

```
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

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>

```
[ic@pcj1ilic@pcj1]-Samsung-Desktop-System gnu$ sudo ./dataSendRecv.bin /dev/ttyUSB0
[sudo] password for ic@pcj1ilic
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 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:
```

```
[ic@pcj1ilic@pcj1]-Samsung-Desktop-System gnu$ sudo ./dataSendRecv.bin /dev/ttyUSB0
[sudo] password for ic@pcj1ilic
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
Network Starting
Network Started
Network up

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

Enter DstAddr:
0x49C9
Enter DstEndpoint:
0x01
Enter message to send or type CHANGE to change the destination
or QUIT to exit:
zdoProcess: CMD0x49, CMDData, not handled

New device joined network.
NwkAddr: 0x49C9
Number of Endpoints: 1
Active Endpoints: 0x01
Hello
Incoming Message from Endpoint 0x01 and Address 0x49C9:
Hello Coordinator

Enter message to send or type CHANGE to change the destination
or QUIT to exit:
Hello Router
Message transmited Succesfully!
Enter message to send or type CHANGE to change the destination
or QUIT to exit:
```