

1. Environment for compiling juice firmware

I was able to build it up easily using the Windows Package Manager 'Chocolatey'.

1-1. Installing Chocolatey (The Package Manager for Windows)

See <https://chocolatey.org/install#individual>

Execute PowerShell as an administrator.

```
> Set-ExecutionPolicy Bypass -Scope Process -Force; [System.Net.ServicePointManager]::SecurityProtocol =  
[System.Net.ServicePointManager]::SecurityProtocol -bor 3072; iex ((New-Object  
System.Net.WebClient).DownloadString('https://community.chocolatey.org/
```

```
> choco -v  
Chocolatey v2.3.0
```

1-2. Installing MinGW64 and GNU make (and VScode)

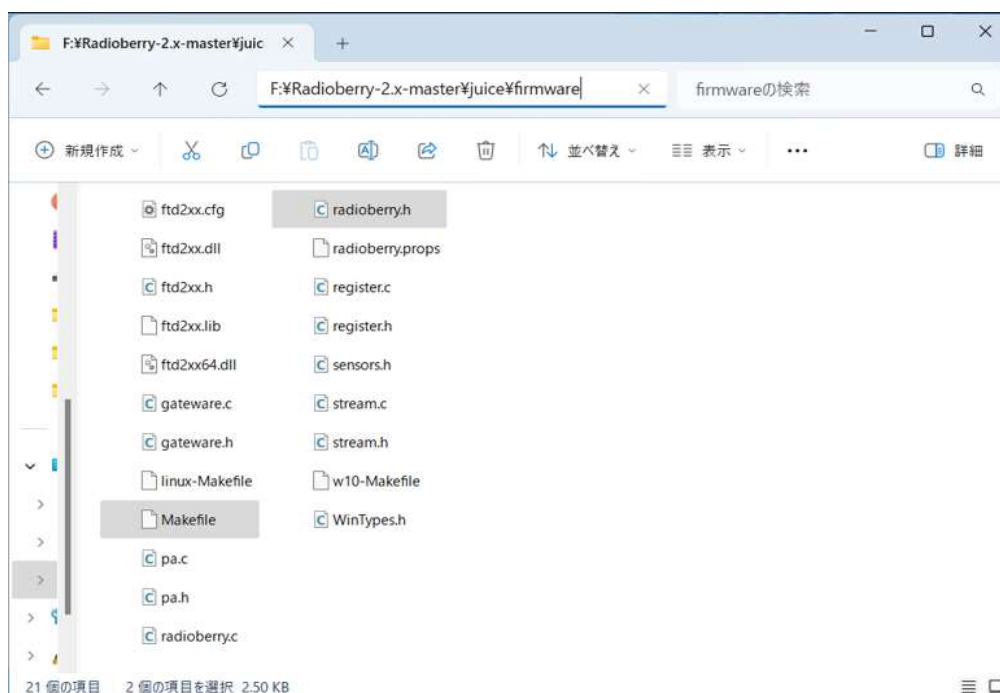
```
> choco install mingw  
> choco install make  
> choco install vscode
```

```
> choco list  
Chocolatey v2.3.0  
make 4.4.1  
mingw 13.2.0  
vscode 1.93.1
```

2. Modifying files for CL016 board

2-1. radioberry.h

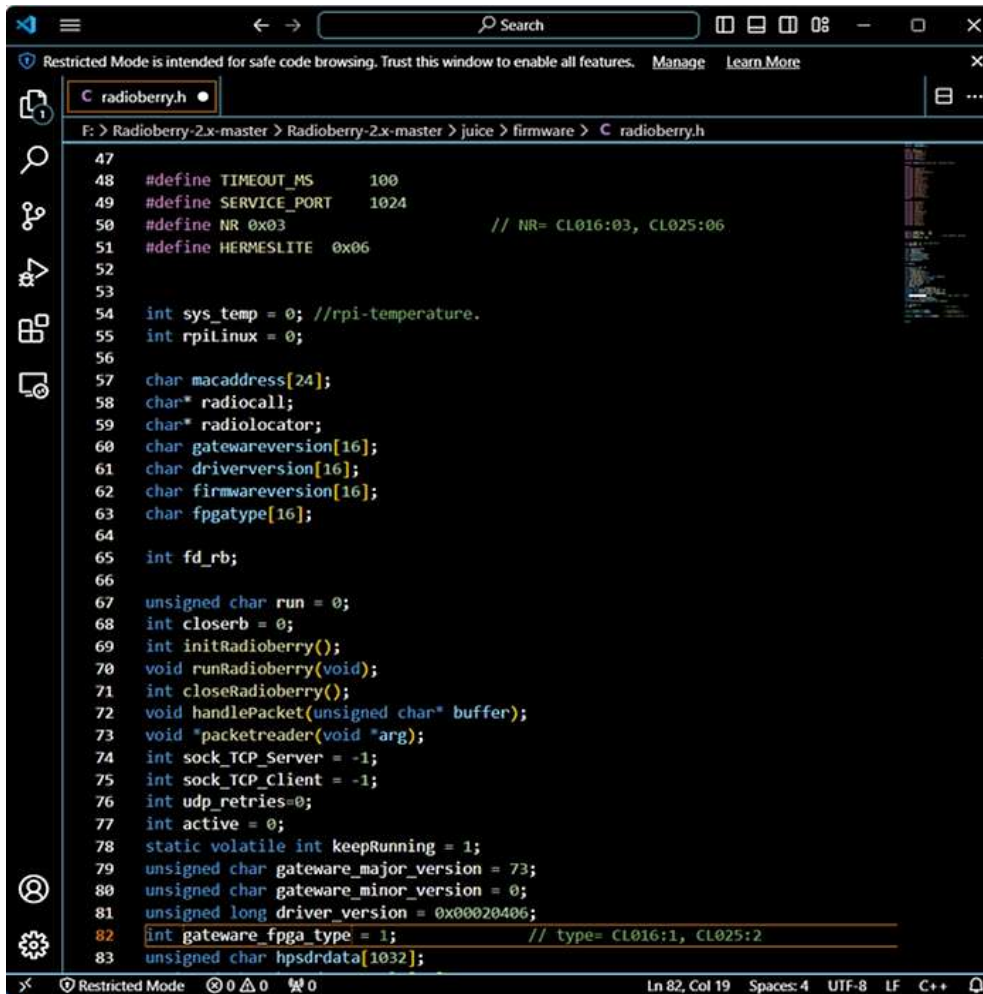
```
> cd Radioberry-2.x-master\juice\firmware  
> ls
```



Modify

Line50. NR(Number of RX) is 0x03 for CL016

Line82. gateway_fpga_type= 1 for CL016



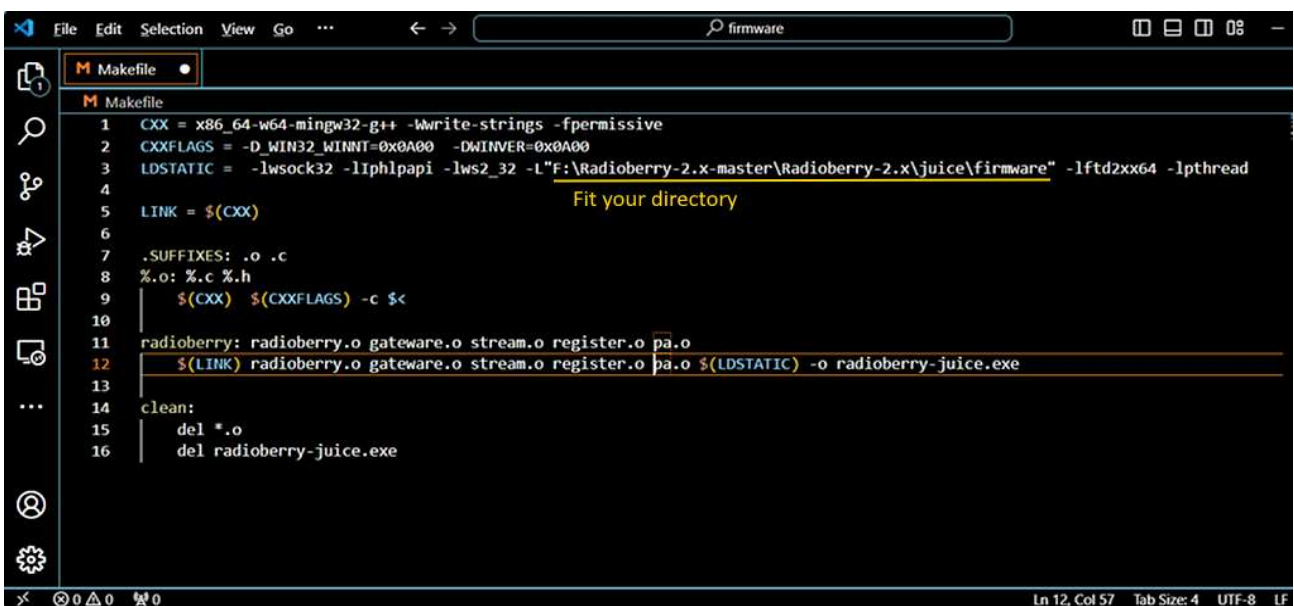
```
47
48 #define TIMEOUT_MS      100
49 #define SERVICE_PORT    1024
50 #define NR 0x03          // NR= CL016:03, CL025:06
51 #define HERMESLITE      0x06
52
53
54 int sys_temp = 0; //rpi-temperature.
55 int rpiLinux = 0;
56
57 char macaddress[24];
58 char* radiocall;
59 char* radiolocator;
60 char gatewayversion[16];
61 char driverversion[16];
62 char firmwareversion[16];
63 char fpgatype[16];
64
65 int fd_rb;
66
67 unsigned char run = 0;
68 int closerb = 0;
69 int initRadioberry();
70 void runRadioberry(void);
71 int closeRadioberry();
72 void handlePacket(unsigned char* buffer);
73 void *packetreader(void *arg);
74 int sock_TCP_Server = -1;
75 int sock_TCP_Client = -1;
76 int udp_retries=0;
77 int active = 0;
78 static volatile int keepRunning = 1;
79 unsigned char gateway_major_version = 73;
80 unsigned char gateway_minor_version = 0;
81 unsigned long driver_version = 0x00020406;
82 int gateway_fpga_type = 1;          // type= CL016:1, CL025:2
83 unsigned char hpsdrdata[1032];
```

2-2. Makefile

> cp w10-Makefile Makefile

> edit Makefile

Line3. Modify to fit your directory.



```
1 CXX = x86_64-w64-mingw32-g++ -Wwrite-strings -fpermissive
2 CXXFLAGS = -D_WIN32_WINNT=0x0A00 -DWINVER=0x0A00
3 LDSTATIC = -lwsck32 -liphlpapi -lws2_32 -L"F:\Radioberry-2.x-master\Radioberry-2.x\juice\firmware" -lftd2xx64 -lpthread
4                                     Fit your directory
5 LINK = $(CXX)
6
7 .SUFFIXES: .o .c
8 %.o: %.c %.h
9     $(CXX) $(CXXFLAGS) -c $<
10
11 radioberry: radioberry.o gateway.o stream.o register.o pa.o
12     $(LINK) radioberry.o gateway.o stream.o register.o pa.o $(LDSTATIC) -o radioberry-juice.exe
13
14 clean:
15     del *.o
16     del radioberry-juice.exe
```

3. Build a firmware

```
> cd Radioberry-2.x-master\juice\firmware
> make
```

```
Windows PowerShell
PS F:\Radioberry-2.x-master\juice\firmware> pwd

Path
----
F:\Radioberry-2.x-master\juice\firmware

PS F:\Radioberry-2.x-master\juice\firmware> make
x86_64-w64-mingw32-g++ -Wwrite-strings -fpermissive -D_WIN32_WINNT=0x0A00 -DWINVER=0x0A00 -c radioberry.c
x86_64-w64-mingw32-g++ -Wwrite-strings -fpermissive -D_WIN32_WINNT=0x0A00 -DWINVER=0x0A00 -c gateway.c
gateway.c:89:6: warning: 'int fopen_s(FILE**, const char*, const char*)' redeclared without dllimport attribute: previous dllimport ignored [-Wattributes]
   89 | int fopen_s(FILE **f, const char *name, const char *mode) {
      |
x86_64-w64-mingw32-g++ -Wwrite-strings -fpermissive -D_WIN32_WINNT=0x0A00 -DWINVER=0x0A00 -c stream.c
x86_64-w64-mingw32-g++ -Wwrite-strings -fpermissive -D_WIN32_WINNT=0x0A00 -DWINVER=0x0A00 -c register.c
register.c: In function 'int getMacAddress()':
register.c:36:64: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   36 |         char *macstr = "%02X:%02X:%02X:%02X:%02X:%02X";
      |
register.c: In function 'void loadRadioberryProps()':
register.c:122:32: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   122 |     loadProperties("./radioberry.props");
      |
register.c:125:33: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   125 |     radiocall = getProperty("call");
      |
register.c:126:40: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   126 |     if (radiocall==NULL) radiocall="";
      |
register.c:128:36: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   128 |     radiolocator = getProperty("locator");
      |
register.c:129:46: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   129 |     if (radiolocator==NULL) radiolocator="";
      |
register.c: In function 'int postRadioberryConfiguration()':
register.c:161:23: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   161 |     char *hname = "www.pa3gsb.nl";
      |
```

```
122 |         loadProperties("./radioberry.props");
register.c:125:33: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   125 |     radiocall = getProperty("call");
register.c:126:40: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   126 |     if (radiocall==NULL) radiocall="";
register.c:128:36: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   128 |     radiolocator = getProperty("locator");
register.c:129:46: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   129 |     if (radiolocator==NULL) radiolocator="";
register.c: In function 'int postRadioberryConfiguration()':
register.c:161:23: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   161 |     char *hname = "www.pa3gsb.nl";
register.c:162:22: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   162 |     char *page = "/radioberry/api/write.php";
register.c:163:25: warning: ISO C++ forbids converting a string constant to 'char*' [-Wwrite-strings]
   163 |     char *poststr = "macaddress=%s&radiocall=%s&radiolocator=%s&gatewayversion=%s&driverversion=%s&firmware
version=%s&fpctype=%s\r\n";
x86_64-w64-mingw32-g++ -Wwrite-strings -fpermissive -D_WIN32_WINNT=0x0A00 -DWINVER=0x0A00 -c pa.c
x86_64-w64-mingw32-g++ -Wwrite-strings -fpermissive radioberry.o gateway.o stream.o register.o pa.o -lws2_32 -lIphlpapi -lF:\Radioberry-2.x-master\juice\firmware -lftd2xx64 -lpthread -o radioberry-juice.exe
PS F:\Radioberry-2.x-master\juice\firmware>
```

> ls

```
PowerShell 7 (x64)
PS F:\Radioberry-2.x-master\juice\firmware> ls

Directory: F:\Radioberry-2.x-master\juice\firmware

Mode                LastWriteTime         Length Name
----                -
-a---         2024/09/21   21:21             75 ftd2xx.cfg
-a---         2024/09/21   21:21        271672 ftd2xx.dll
-a---         2024/09/21   21:21        39485 ftd2xx.h
-a---         2024/09/21   21:21        20260 ftd2xx.lib
-a---         2024/09/21   21:21       314552 ftd2xx64.dll
-a---         2024/09/21   21:21        6695 gateway.c
-a---         2024/09/21   21:21        1104 gateway.h
-a---         2024/09/21   21:25        6446 gateway.o
-a---         2024/09/21   21:21         609 linux-Makefile
-a---         2024/09/21   21:26         486 Makefile
-a---         2024/09/21   21:21        7011 pa.c
-a---         2024/09/21   21:21        2423 pa.h
-a---         2024/09/21   21:25        6651 pa.o
-a---         2024/09/21   21:27       131964 radioberry-juice.exe
-a---         2024/09/21   21:21       18039 radioberry.c
-a---         2024/09/21   21:21       1990 radioberry.h
-a---         2024/09/21   21:25       20259 radioberry.o
-a---         2024/09/21   21:21         34 radioberry.props
-a---         2024/09/21   21:21       5775 register.c
-a---         2024/09/21   21:21       1152 register.h
-a---         2024/09/21   21:25       8883 register.o
-a---         2024/09/21   21:21       5453 sensors.h
-a---         2024/09/21   21:21       2211 stream.c
-a---         2024/09/21   21:21       376 stream.h
-a---         2024/09/21   21:25       3400 stream.o
-a---         2024/09/21   21:21       487 w10-Makefile
-a---         2024/09/21   21:21       5321 WinTypes.h
```

//

2024.09.21 Yado-san, jg1twp