*****Default*****

Adding WiFI to DWT openjpeg

12/04/21

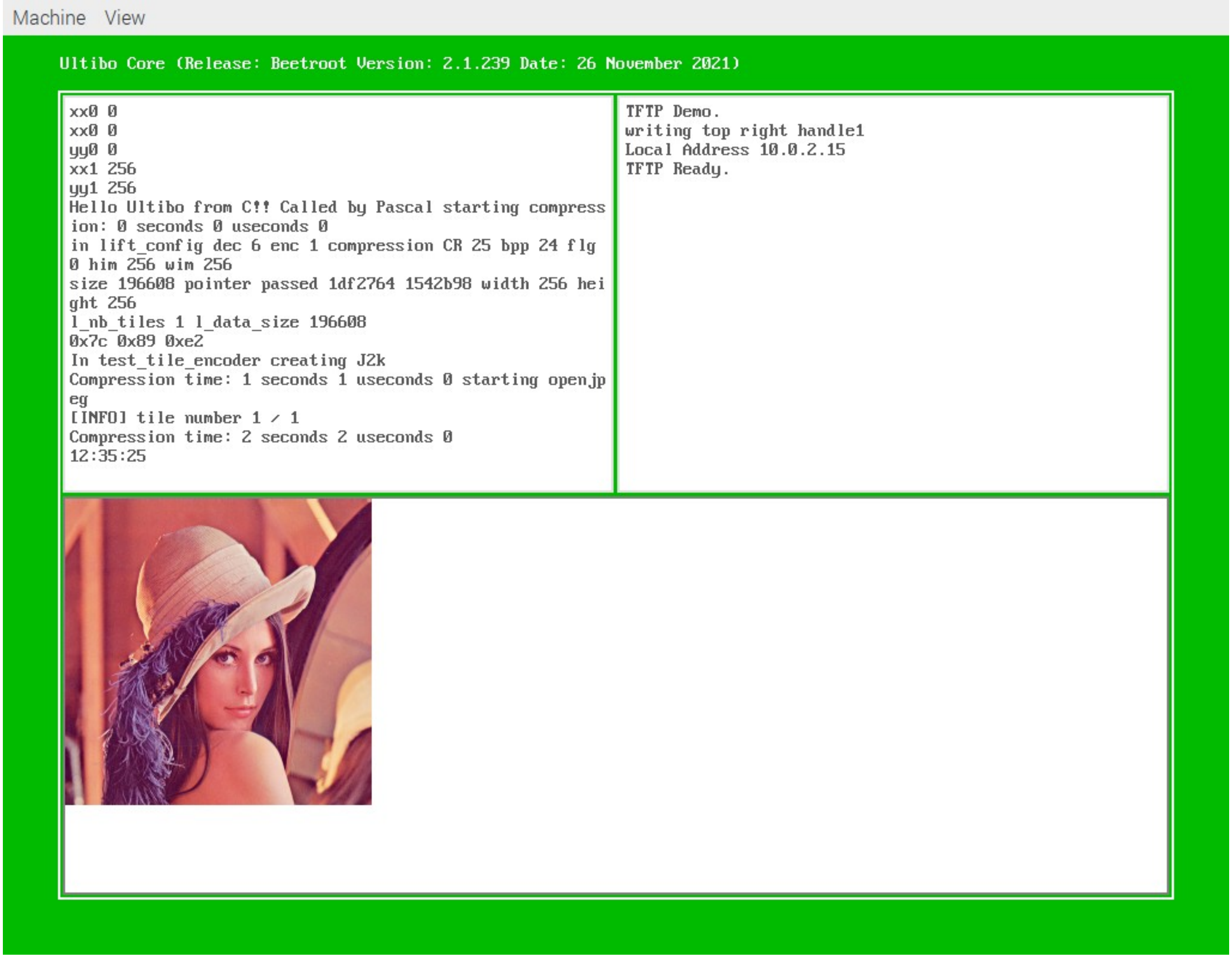
*****Default*****

Objective: To start with Ultibo members pjde & ric355 to create a Rpi WIFI that provides remote shell, webstatus. tftp, openjpeg 2000 over WIFI.
This will also integrate C with Ultibo.

This project starts with 2 of Ulitbo_Projects
Ultibo_Projects/jpeg2000

- **DWT_LIFT_Rpi.lpr**
- **uBufferToC.pas**
- **uliftbitmap.pas**
- **uTFTP.pas**

This image below is using QEMU



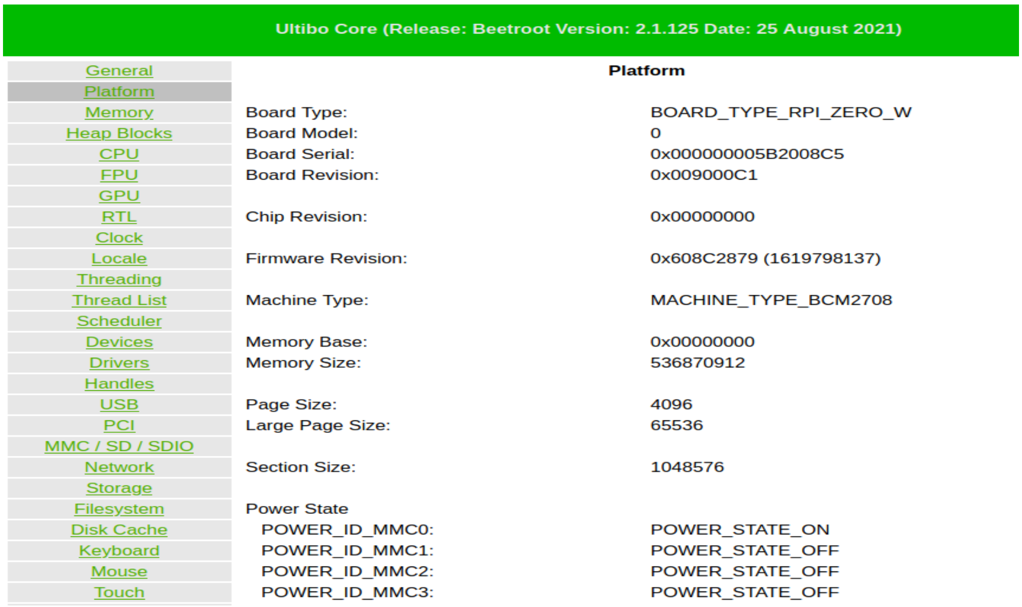
```
Ultibo Core (Release: Beetroot Version: 2.1.239 Date: 26 November 2021)
```

```
xx0 0
xx0 0
yy0 0
xx1 256
yy1 256
Hello Ultibo from C!! Called by Pascal starting compress
ion: 0 seconds 0 useconds 0
in lift_config dec 6 enc 1 compression CR 25 bpp 24 flg
0 him 256 wim 256
size 196608 pointer passed 1df2764 1542b98 width 256 hei
ght 256
l_nb_tiles 1 l_data_size 196608
0x7c 0x89 0xe2
In test_tile_encoder creating J2k
Compression time: 1 seconds 1 useconds 0 starting openjp
eg
[INFO] tile number 1 / 1
Compression time: 2 seconds 2 useconds 0
12:35:25
```

```
TFTP Demo.
writing top right handle1
Local Address 10.0.2.15
TFTP Ready.
```

Ultibo_Projects/RIC-WIFI

- **wifi.lpr**
- **wifidevice.pas**
- **overrides.pas**
- **wifidevice.pas**
- **logoutput.pas**
- **uTFTP.pas**



Ultibo Core (Release: Beetroot Version: 2.1.125 Date: 25 August 2021)

Platform

Board Type:	BOARD_TYPE_RPI_ZERO_W
Board Model:	0
Board Serial:	0x000000005B2008C5
Board Revision:	0x009000C1
Chip Revision:	0x00000000
Firmware Revision:	0x608C2879 (1619798137)
Machine Type:	MACHINE_TYPE_BCM2708
Memory Base:	0x00000000
Memory Size:	536870912
Page Size:	4096
Large Page Size:	65536
Section Size:	1048576
Power State	
POWER_ID_MMC0:	POWER_STATE_ON
POWER_ID_MMC1:	POWER_STATE_OFF
POWER_ID_MMC2:	POWER_STATE_OFF
POWER_ID_MMC3:	POWER_STATE_OFF

Status: Currently the Ultibo window appears and then disapeas.

Steps to create a kernel.img

Need to create a library of the openjpeg sources.

cd Ultibo_Projects/RIC-WIFI/src

The next step creates libopenjp2.a & libopenjp2_obj.txt

./compile_ultibo.sh

The word count here should be 22

the word count in /home/pi/jpeg-2000-test/bare-metal/openjp

when ./libbuild.sh is executed should be 22

22 22 182 libopenjp2_obj.txt

Need to create a library for Ultibo using libopenjp2.a from previous step.

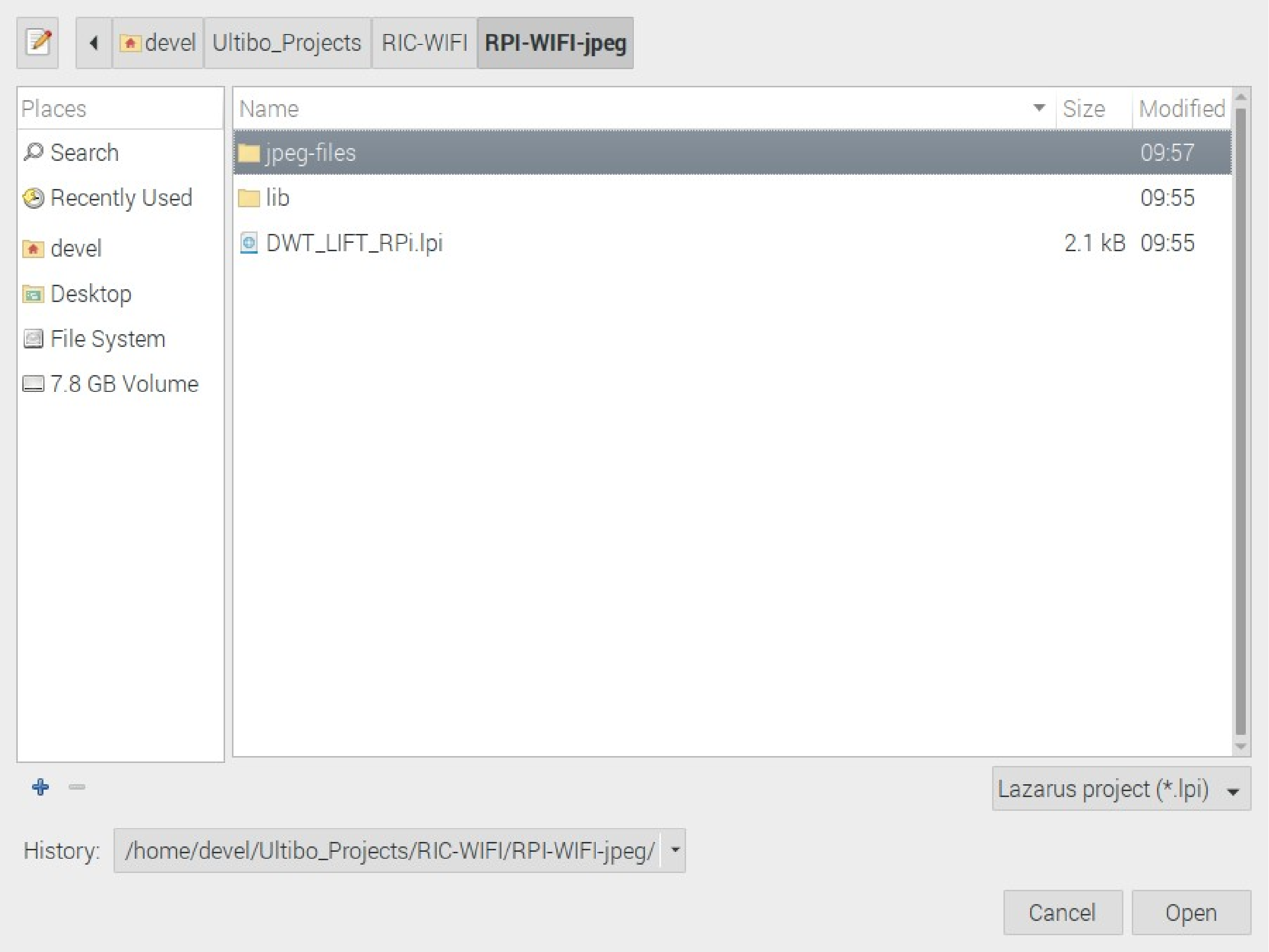
cd ../RPI-WIFI-jpeg/

./libbuild.sh

dwtlift.c: In function 'decompress':

```
dwtlift.c:658:3: warning: implicit declaration of function 'octave_write_byte'; did you mean
'opj_write_tile'? [-Wimplicit-function-declaration]
octave_write_byte(r_decompress_fn,r_decompress,da_x1*da_y1);
^~~~~~~~~~~~~~~~~
opj_write_tile
```

Using Lazarus IDE (Ultibo-Edition)
From the main menu Project/Open

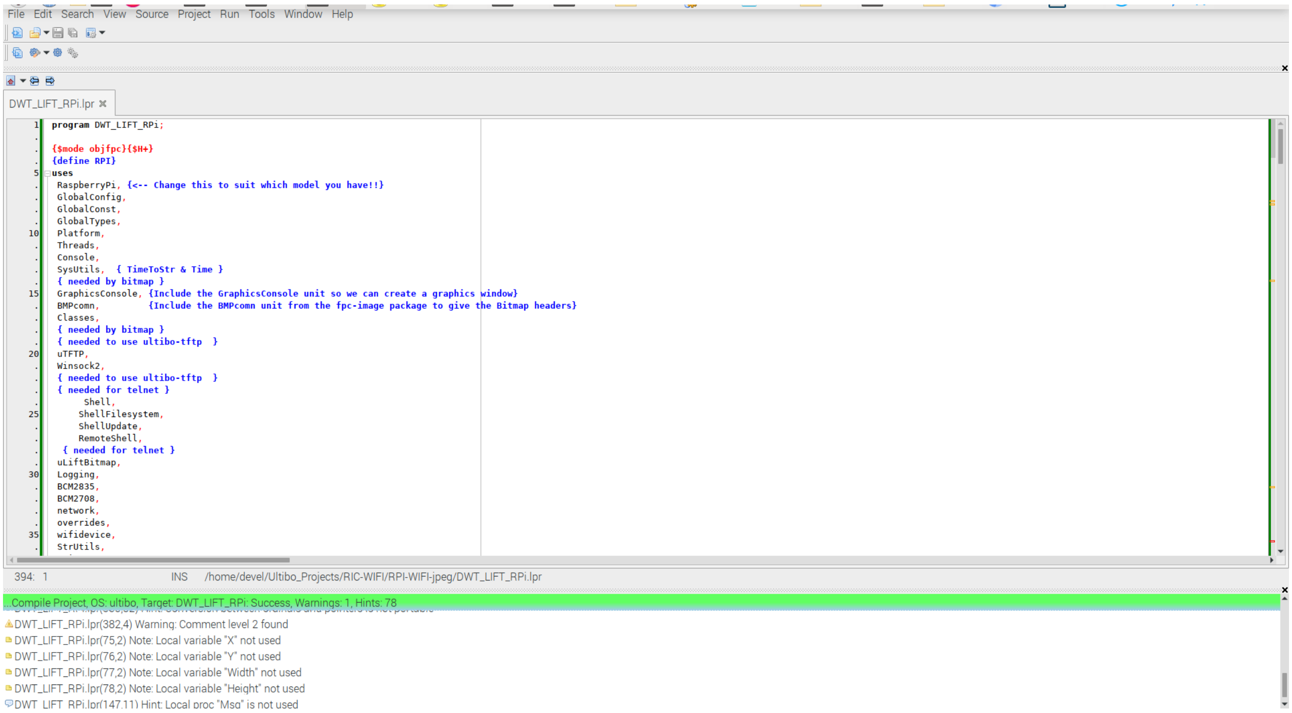


Lazarus project (*.lpi)

History: /home/devel/Ultibo_Projects/RIC-WIFI/RPI-WIFI-jpeg/

Depress Open

From the main menu Run/Compile



```
program DWT_LIFT_RPi;

{$mode objfpc}{$H+}
{define RPI}
uses
 RaspberryPi, {<-- Change this to suit which model you have!!}
 GlobalConfig,
 GlobalConst,
 GlobalTypes,
 Platform,
 Threads,
 Console,
 SysUtils,  { TimeToStr & Time }
 { needed by bitmap }
 GraphicsConsole, {Include the GraphicsConsole unit so we can create a graphics window}
 BMPcomn,         {Include the BMPcomn unit from the fpc-image package to give the Bitmap headers}
 Classes,
 { needed by bitmap }
 { needed to use ultibo-tftp  }
 uTFTP,
 Winsock2,
 { needed to use ultibo-tftp  }
 { needed for telnet }
      Shell,
     ShellFilesystem,
     ShellUpdate,
     RemoteShell,
  { needed for telnet }
 uLiftBitmap,
 Logging,
 BCM2835,
 BCM2708,
 network,
 overrides,
 wifidevice,
 StrUtils,
```

```
394:  1        INS    /home/devel/Ultibo_Projects/RIC-WIFI/RPI-WIFI-jpeg/DWT_LIFT_RPi.lpr
```

```
...Compile Project, OS: ultibo, Target: DWT_LIFT_RPi: Success, Warnings: 1, Hints: 78
DWT_LIFT_RPi.lpr(383,32) Hint: Conversion between ordinals and pointers is not portable
⚠DWT_LIFT_RPi.lpr(382,4) Warning: Comment level 2 found
DWT_LIFT_RPi.lpr(75,2) Note: Local variable "X" not used
DWT_LIFT_RPi.lpr(76,2) Note: Local variable "Y" not used
DWT_LIFT_RPi.lpr(77,2) Note: Local variable "Width" not used
DWT_LIFT_RPi.lpr(78,2) Note: Local variable "Height" not used
DWT_LIFT_RPi.lpr(147,11) Hint: Local proc "Msg" is not used
```

The green bar indicates the kernel.img was created.