

*****Draft*****
Installing Wine on Ubuntu 16.04 sim2
Examples of Lazarus running QEMU
09/09/17
*****Draft*****

On newly built Ubuntu 16.04.

```
sudo apt-get update
sudo apt-get install wine
sudo apt-get install binutils-arm-none-eabi
sudo apt-get install gcc-arm-none-eabi
sudo apt-get install openssh-server
sudo apt-get install git
git clone https://github.com/develone/Core.git
git clone https://github.com/develone/Examples.git
sudo apt-get install tree diffuse
sudo apt-get install cmake needed for openjpeg
sudo apt-get install libtiff-tools needed for openjpeg
sudo apt-get install libpng-dev needed for openjpeg
```

The site to download Lazarus & Free Pascal Compiler FPC for Ultibo
“<https://ultibo.org/download/>”

The following command installs Lazarus & Free Pascal Compiler FPC for Ultibo.

“*vidal@sim2:~\$ wine Ultibo-Core-1.3.077-Cucumber.exe*”

The following commands starts Lazarus.

“*cd /home/vidal/.wine/drive_c/Ultibo/Core*”
“*wine startlazarus.exe*”

Note:

Updating the RTL

**vidal@sim2:~/.wine/drive_c/Ultibo/Core/fpc/3.1.1/source/rtl\$ rsync -avl
/home/vidal/Core/source/rtl/ultibo .**

**Needed to create a file in ~/.wine/drive_c/Ultibo/Core/tools/BuildRTL.ini
with the contents below.**

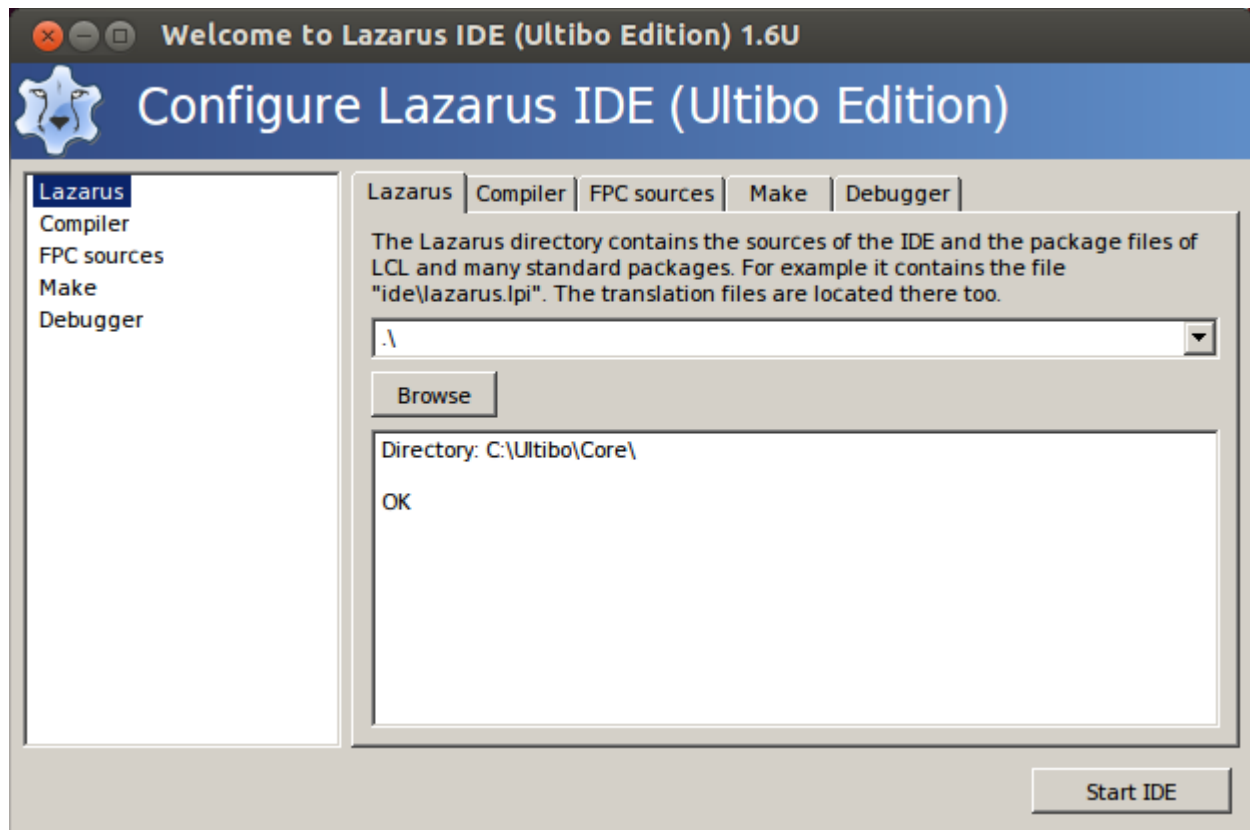
[BuildRTL]

PathPrefix=%PATH%;

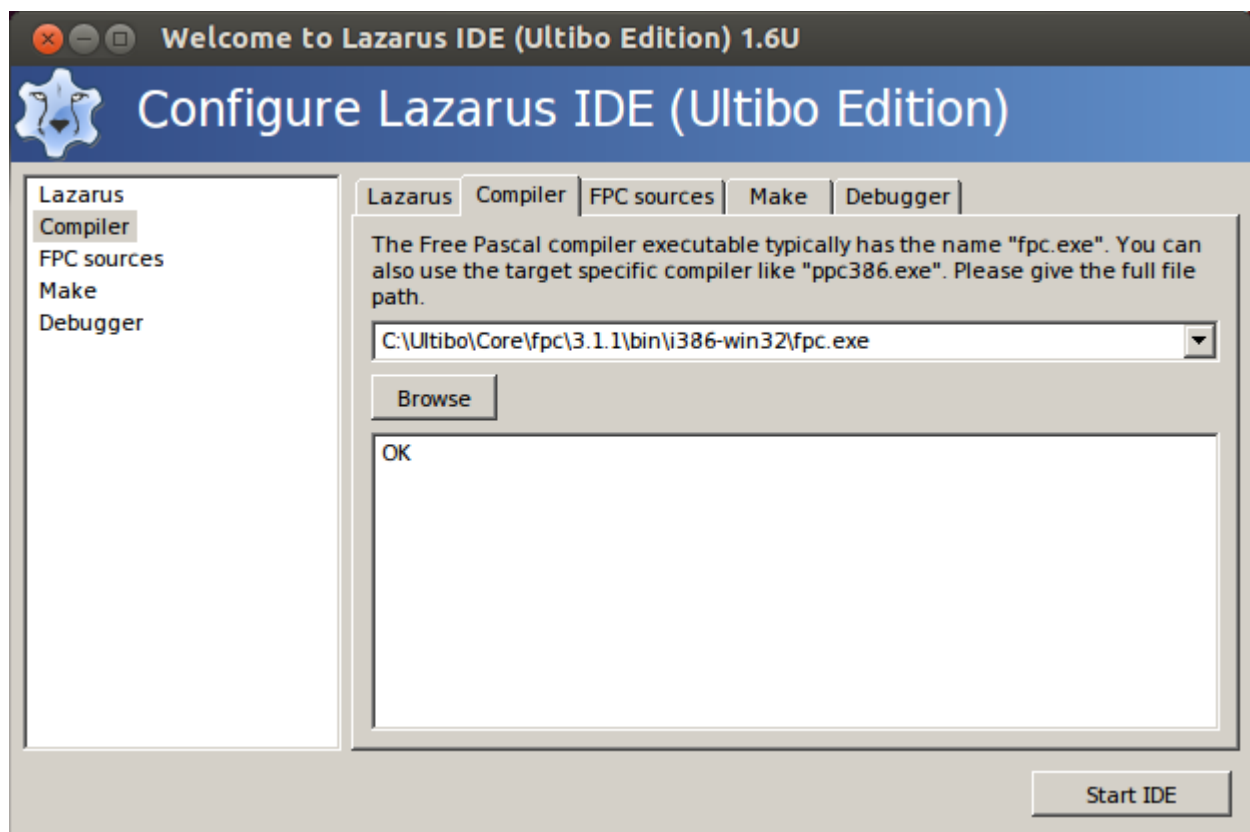
**This fixed the problem of not rebuilding the RTL using Lazarus.
from the Tools/Build Ultibo RTL**

**This stil did not work, highlighted GobalConst and right click Find declaration does not work
Ultibo wrote <https://ultibo.org/forum/viewtopic.php?p=5152#p5152>**

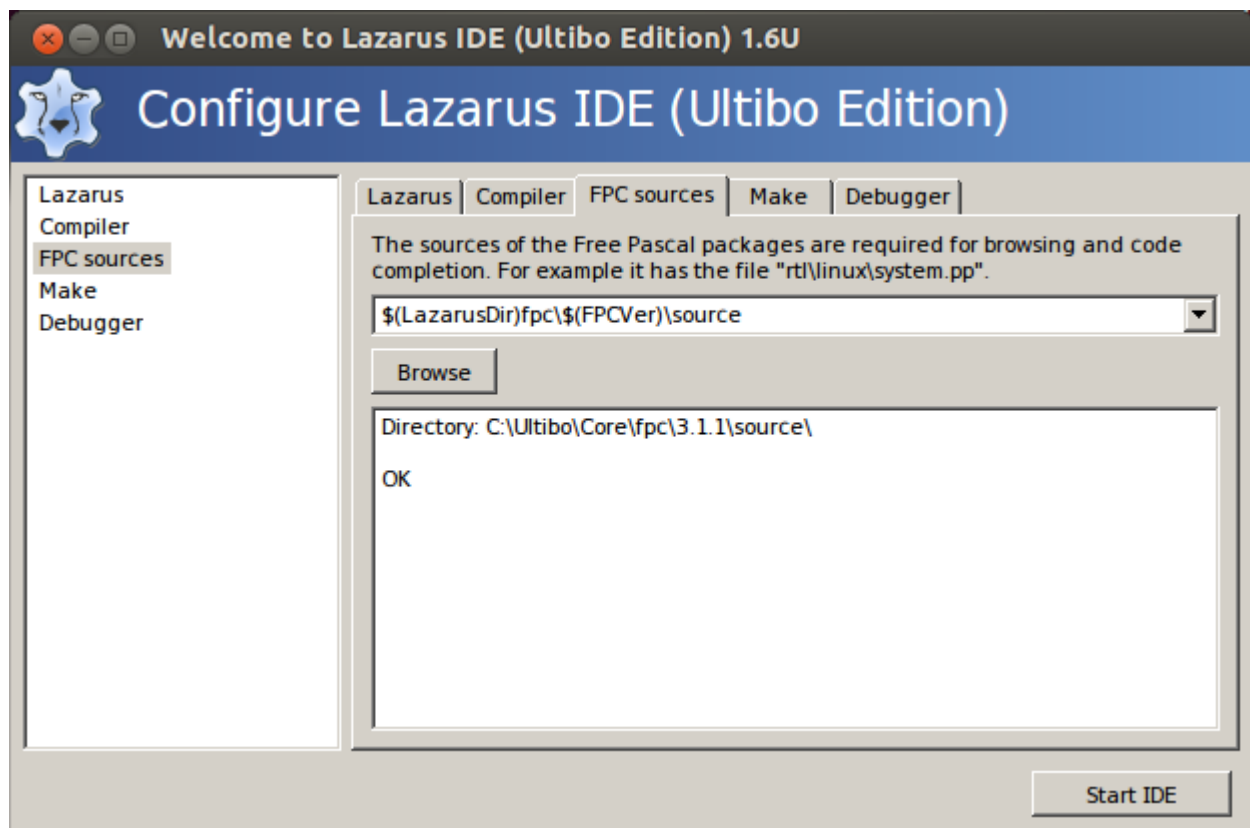
**Try holding down Ctrl key and left clicking on GlobalConst, that should work even if right click Find
Declaration doesn't.**



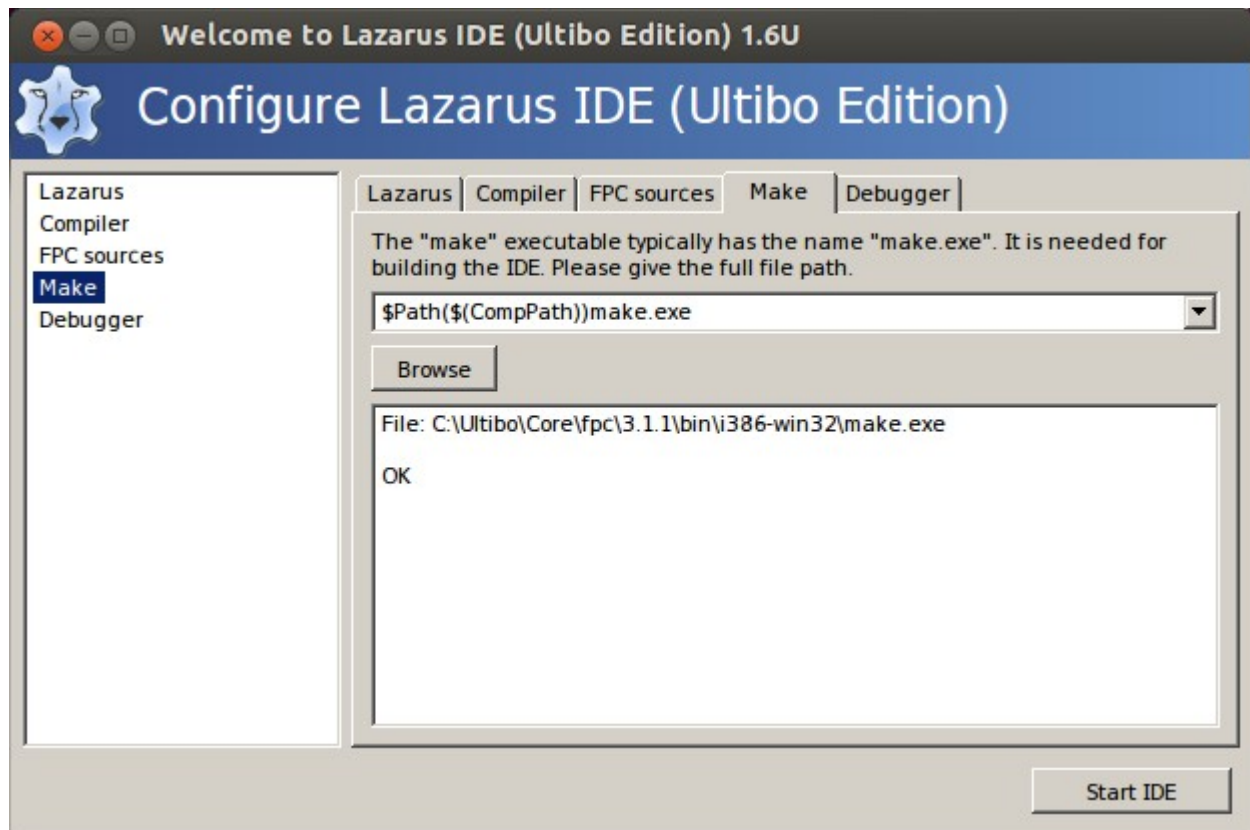
Compiler



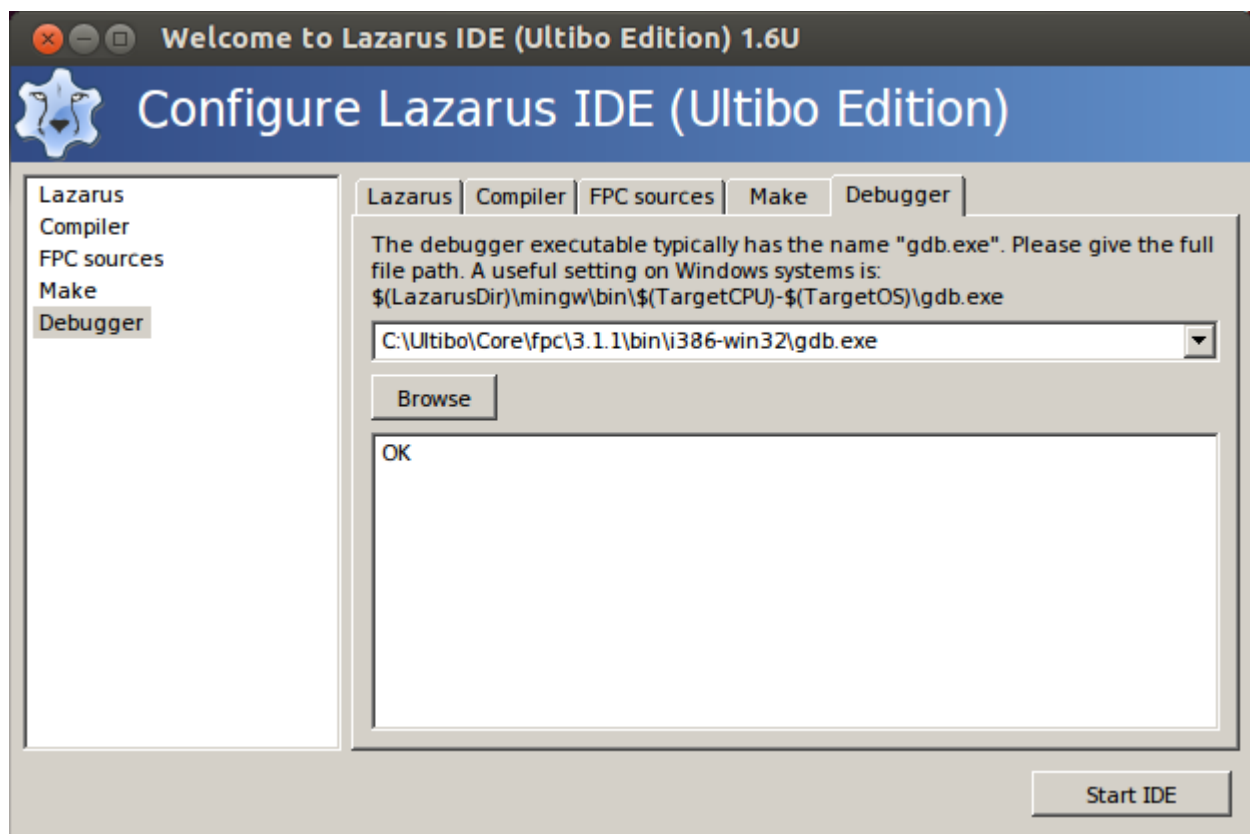
FPC Sources



Make



Debugger

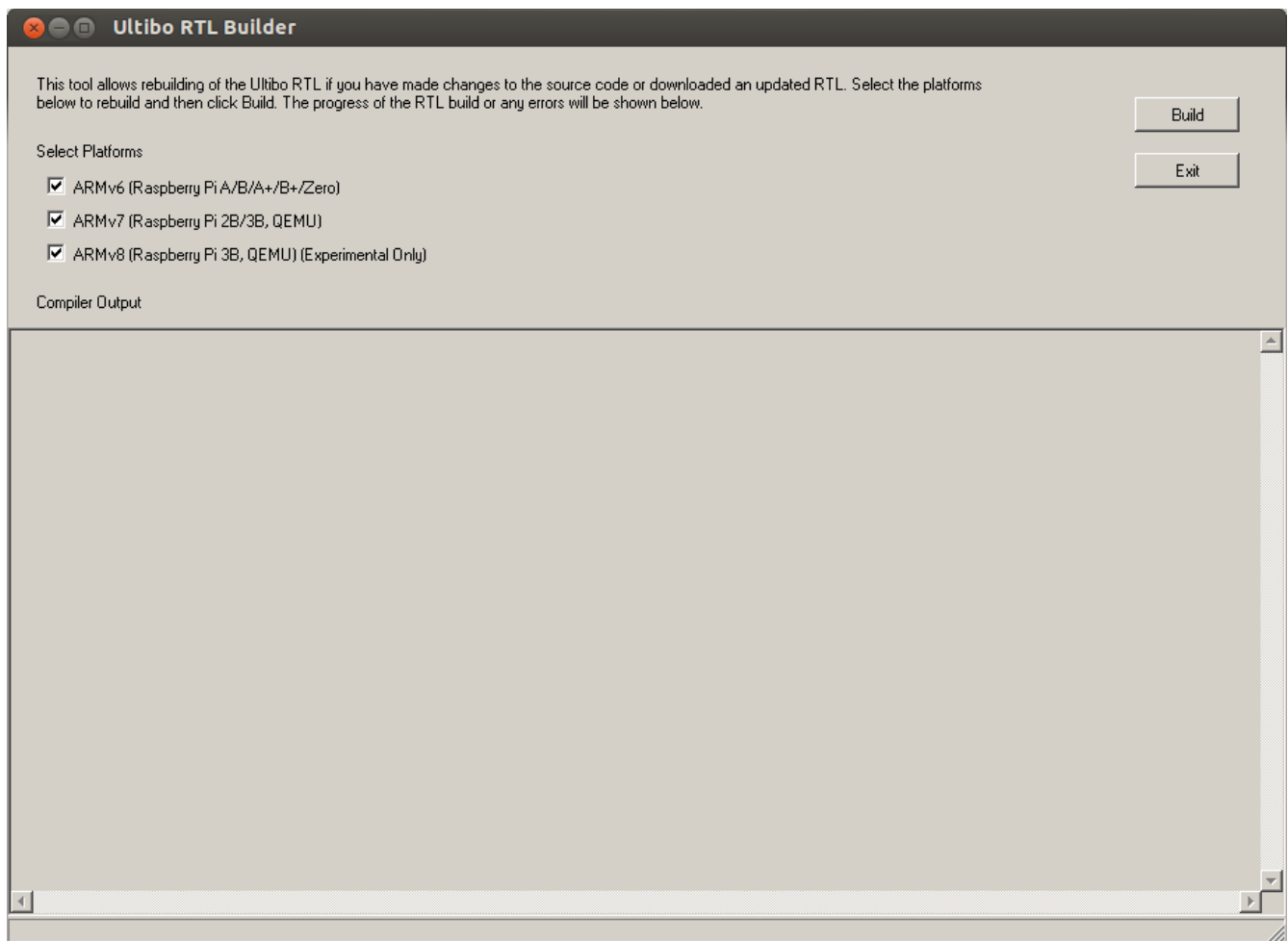


commit 63af0987b6ca8e075627d84a52332ad043b9d4c8

Author: Ultibo <admin@ultibo.org>

Date: Wed Dec 28 16:18:08 2016 +1100

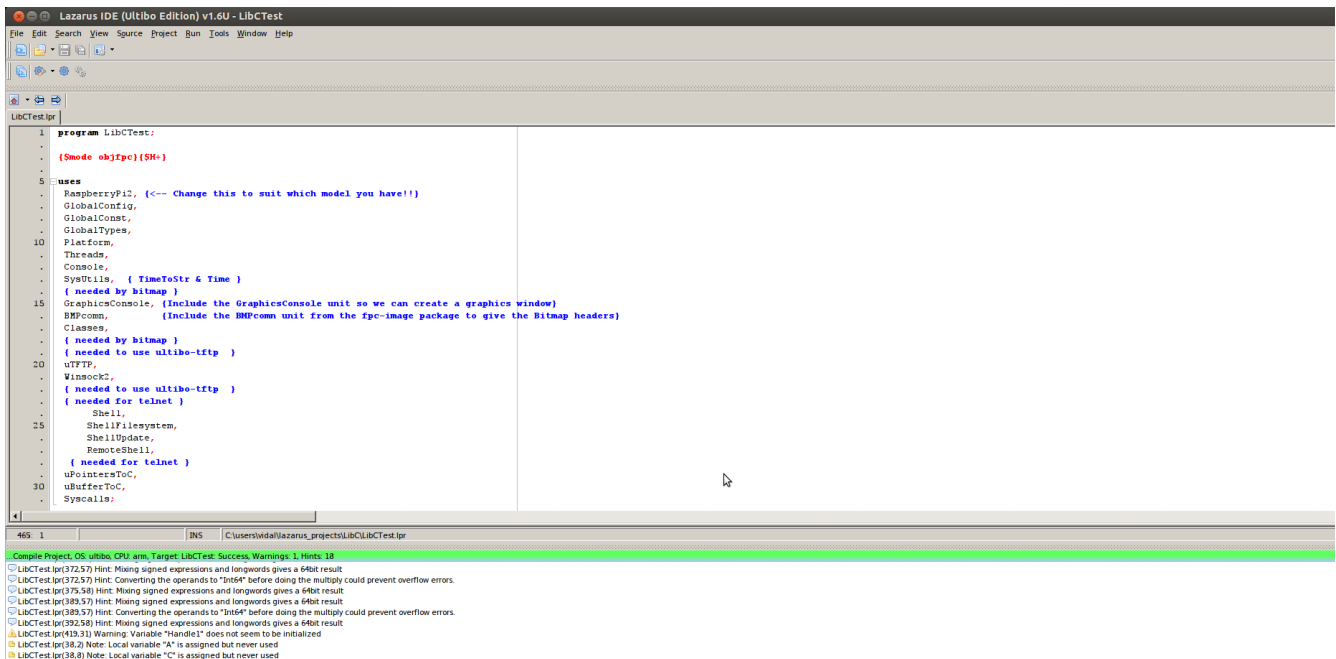
Update gitignore to allow __buildrtl.bat
vidal@ws009:~/wkg/Core/source/rtl\$ cp -R ultibo/ ~/.wine/drive_c/Ultibo/Core/fpc/3.1.1/source/rtl/



Need to compile the file test.c to test.o with the command ***“arm-none-eabi-gcc -O2 -mabi=aapcs -marm -march=armv7-a -mfpv3-d16 -mfloat-abi=hard -c test.c”***

Need to create the file libtest.a from the file test.o with the command ***“arm-none-eabi-ar rcs libtest.a test.o”***

Created a project LibCTest from the file LibCTestRPI2.lpr

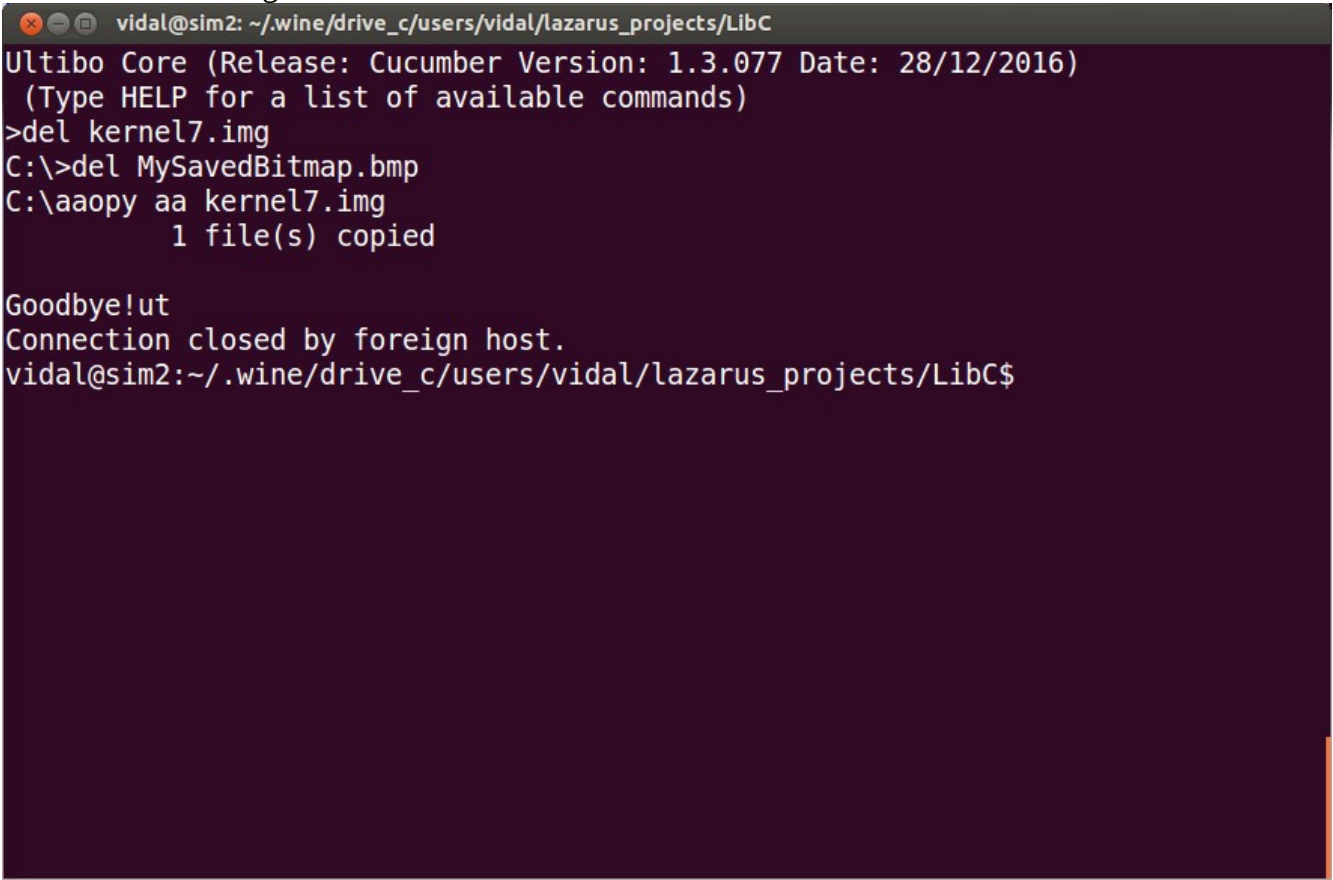


Created a project LibCTest from the file LibCTestRPI2.lpr

Transfer kernel7.img to target RPi3.

```
vidal@sim2: ~/.wine/drive_c/users/vidal/lazarus_projects/LibC
vidal@sim2:~/.wine/drive_c/users/vidal/lazarus_projects/LibC$ date; ls -la kernel7.img
mar feb  7 11:49:48 MST 2017
-rw-rw-r-- 1 vidal vidal 2557136 feb  7 11:49 kernel7.img
vidal@sim2:~/.wine/drive_c/users/vidal/lazarus_projects/LibC$ tftp 192.168.1.185
tftp> binary
tftp> put kernel7.img aa
Sent 2557136 bytes in 8.7 seconds
tftp> get aa bb
Received 2557136 bytes in 8.6 seconds
tftp> quit
vidal@sim2:~/.wine/drive_c/users/vidal/lazarus_projects/LibC$ md5sum kernel7.img
10695e0172b8c5629865680ad1b2ecdb kernel7.img
10695e0172b8c5629865680ad1b2ecdb bb
vidal@sim2:~/.wine/drive_c/users/vidal/lazarus_projects/LibC$
```

Once the kernel7.img has been transferred as aa.



```
vidal@sim2: ~/.wine/drive_c/users/vidal/lazarus_projects/LibC
Ultibo Core (Release: Cucumber Version: 1.3.077 Date: 28/12/2016)
(Type HELP for a list of available commands)
>del kernel7.img
C:\>del MySavedBitmap.bmp
C:\aaopy aa kernel7.img
      1 file(s) copied

Goodbye!ut
Connection closed by foreign host.
vidal@sim2:~/.wine/drive_c/users/vidal/lazarus_projects/LibC$
```

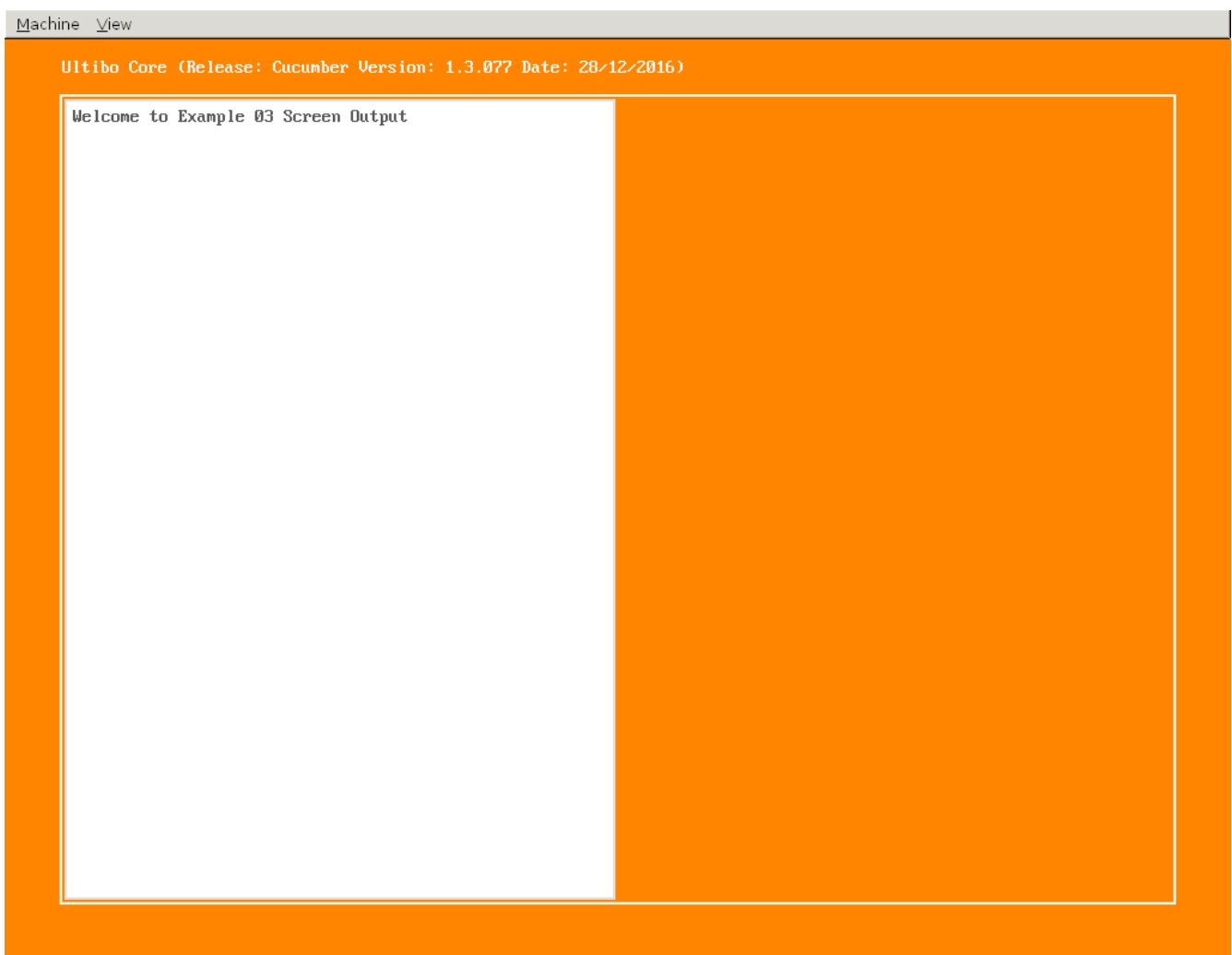
QEMU is part of Ultibo.

Using Example 03-ScreenOutput

<https://github.com/develone/Examples.git>

cp -R ~/wkg/Examples/03-ScreenOutput/QEMU/ ~/.wine/drive_c/users/vidal/lazarus_projects/

QEMU screen 1



QEMU screen 2

Machine View

Ultibo Core (Release: Cucumber Version: 1.3.077 Date: 28/12/2016)

```
Welcome to Example 03 Screen Output  
CurrentX = 1  
CurrentY = 2
```

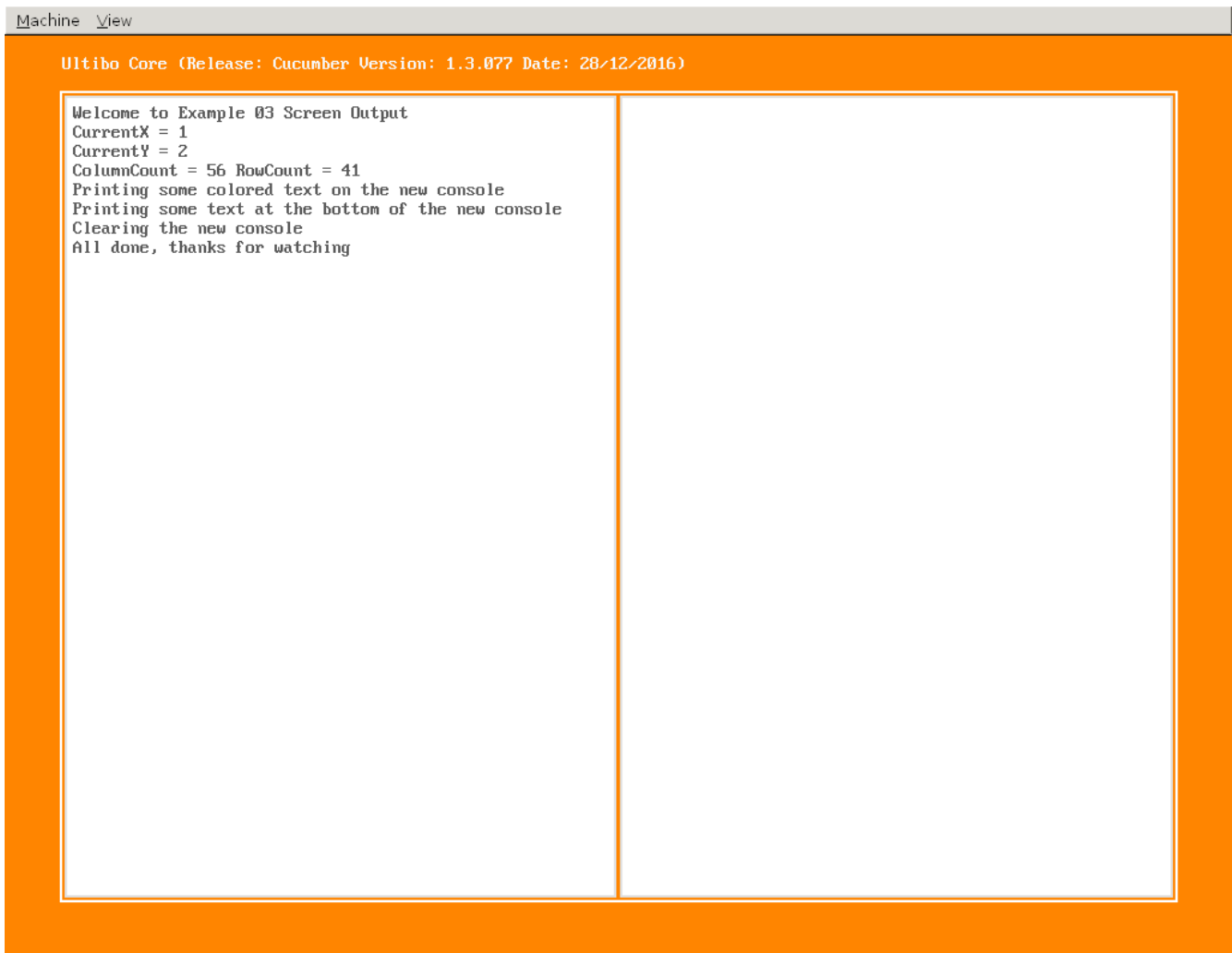
QEMU screen 3

Ultibo Core (Release: Cucumber Version: 1.3.077 Date: 28/12/2016)

```
Welcome to Example 03 Screen Output
CurrentX = 1
CurrentY = 2
ColumnCount = 56 RowCount = 41
Printing some colored text on the new console
```

```
This is some text in red
This is some text in green
This is some text in yellow
```

QEMU screen 4



Using C in Ultibo using QEMU
Create a file compile_qemu.sh

```
#!/bin/bash  
arm-none-eabi-gcc -O2 -mabi=aapcs -marm -march=armv6 -mfpv=vfp -mfloat-abi=hard -c test.c  
arm-none-eabi-ar rcs libtest.a test.o
```

Create test.c

```
/*  
 * test.c  
 *  
 * A simple C library to include in your Ultibo project  
 *  
 */  
  
#include <stdio.h>  
  
void test ()  
{
```

```
    printf ("Hello Ultibo from C!!\n");  
}
```

Create a file LibC_QEMU.lpr

```
program LibCTest;  
  
{$mode objfpc}{$H+}  
  
uses  
    QEMUVersatilePB,  
    GlobalConfig,  
    GlobalConst,  
    GlobalTypes,  
    Platform,  
    Threads,  
    Console,  
    Syscalls;  
  
{$linklib test}  
  
procedure test; cdecl; external 'libtest' name 'test';  
  
var  
    Handle:THandle;  
  
begin  
    Handle:=ConsoleWindowCreate(ConsoleDeviceGetDefault,CONSOLE_POSITION_FULL,True);  
  
    test;  
  
    ThreadHalt(0);  
end.
```

Machine View

Ultibo Core (Release: Cucumber Version: 1.3.077 Date: 28/12/2016)

Hello Ultibo from C!!

*******DRAFT*******

*Compile DWT_LIFT_RPi2.lpr
using Lazarus
04/06/17*

*******DRAFT*******

```
vidal@sim2:~/wine/drive_c/users/vidal/lazarus_projects/openjp$ pwd  
/home/vidal/.wine/drive_c/users/vidal/lazarus_projects/openjp
```

```
vidal@sim2:~/wine/drive_c/users/vidal/lazarus_projects/openjp$ cp -R ~/wkg/jpeg-2000-test/bare-  
metal/openjp/ .
```

When using on Lazarus on x86_64 under wine.

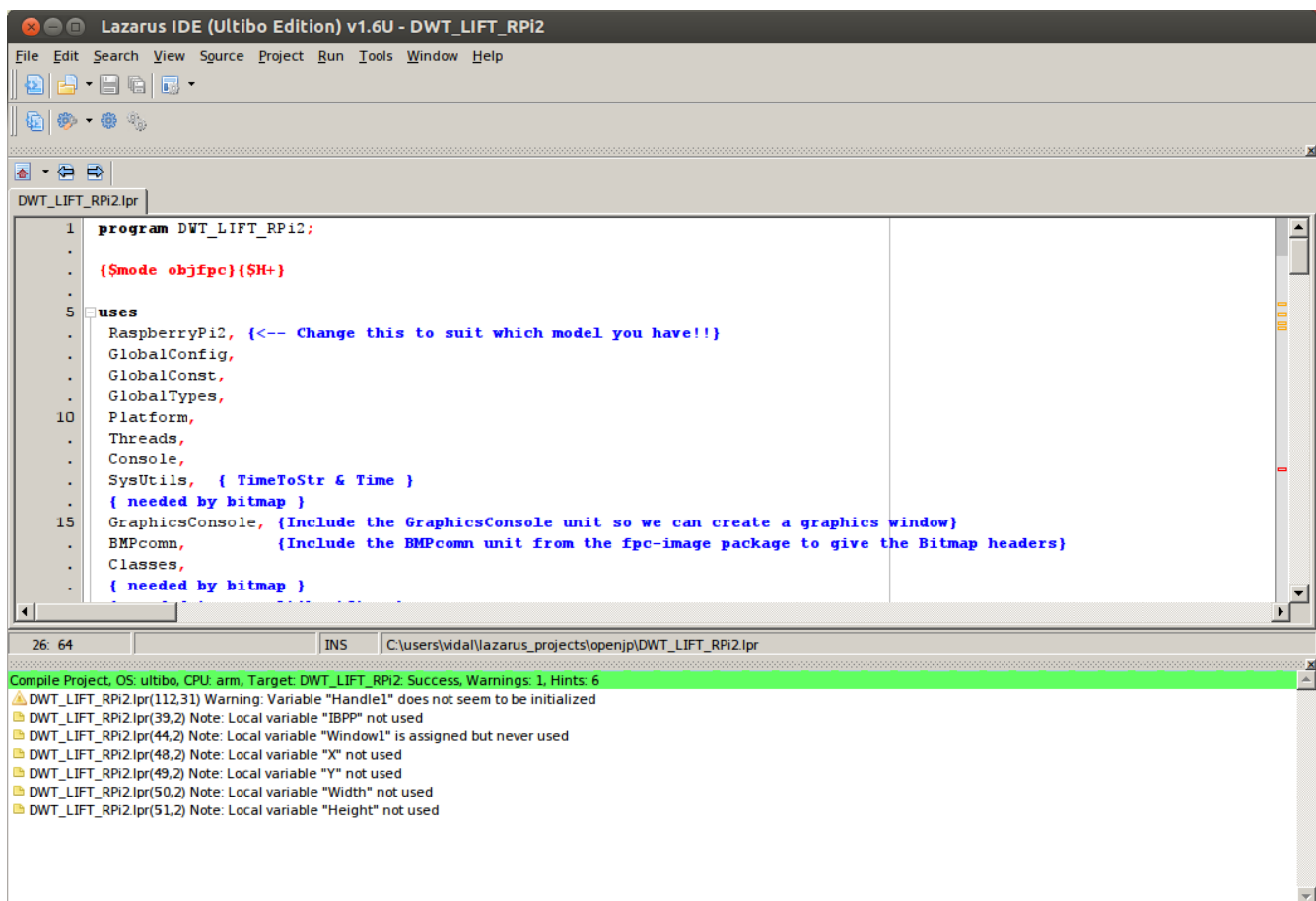
Note: If you can not create the libopenjp2.a
Needed to modified "compile.sh" such not to remove the libopenjp2.a
and not call the fpc compiler when using Lazarus.

```

vidal@sim2:~/wine/drive_c/users/vidal/lazarus_projects/openjp$ diff compile.sh ~/wkg/jpeg-2000-
test/bare-metal/openjp/compile.sh
7c7
< #rm -f libopenjp2.a
---
> rm -f libopenjp2.a
9c9
< #cp ~/t_ultibo/src/lib/openjp2/libopenjp2.a .
---
> cp ~/t_ultibo/src/lib/openjp2/libopenjp2.a .
23c23
< #fpc -vi -B -Tultibo -Parm -CpARMV7A -WpRPI2B @/home/pi/ultibo/core/fpc/bin/rpi2.cfg -O4
DWT_LIFT_RPi2.lpr
---
> fpc -vi -B -Tultibo -Parm -CpARMV7A -WpRPI2B @/home/pi/ultibo/core/fpc/bin/rpi2.cfg -O4
DWT_LIFT_RPi2.lpr

```

From the Run menu select Compile.



Following the cleanup of unused items.
This version continues to have issues with images of 2048 x 2048.

