

*****Draft*****

**Multi (5) QEMU Ultibo Bare Metal
JPEG2000
with
Remote Shell
07/30/21**

*****Draft*****

Note:

<https://ultibo.org/forum/viewtopic.php?f=13&t=1303&p=11632#p11632>

By Ultibo Wed Jul 21, 2021 9:01 pm

I suspect the version of QEMU that you have on the RPI3B+ is later than the one on the RPi4, try doing qemu-system-arm -version on each one.

We recently discovered that the Ultibo SD card driver was not compatible with the latest versions of QEMU, a fix for this is included in the release from today (Ultibo core 2.1.079) so if you update your RTL to the latest either using the RTL Builder or by rerunning the ultiboinstaller script then it should work now.

**<https://en.m.wikipedia.org/wiki/QEMU>. On the pi400-1 I ran
./ultiboinstaller.sh on pi400-1.**

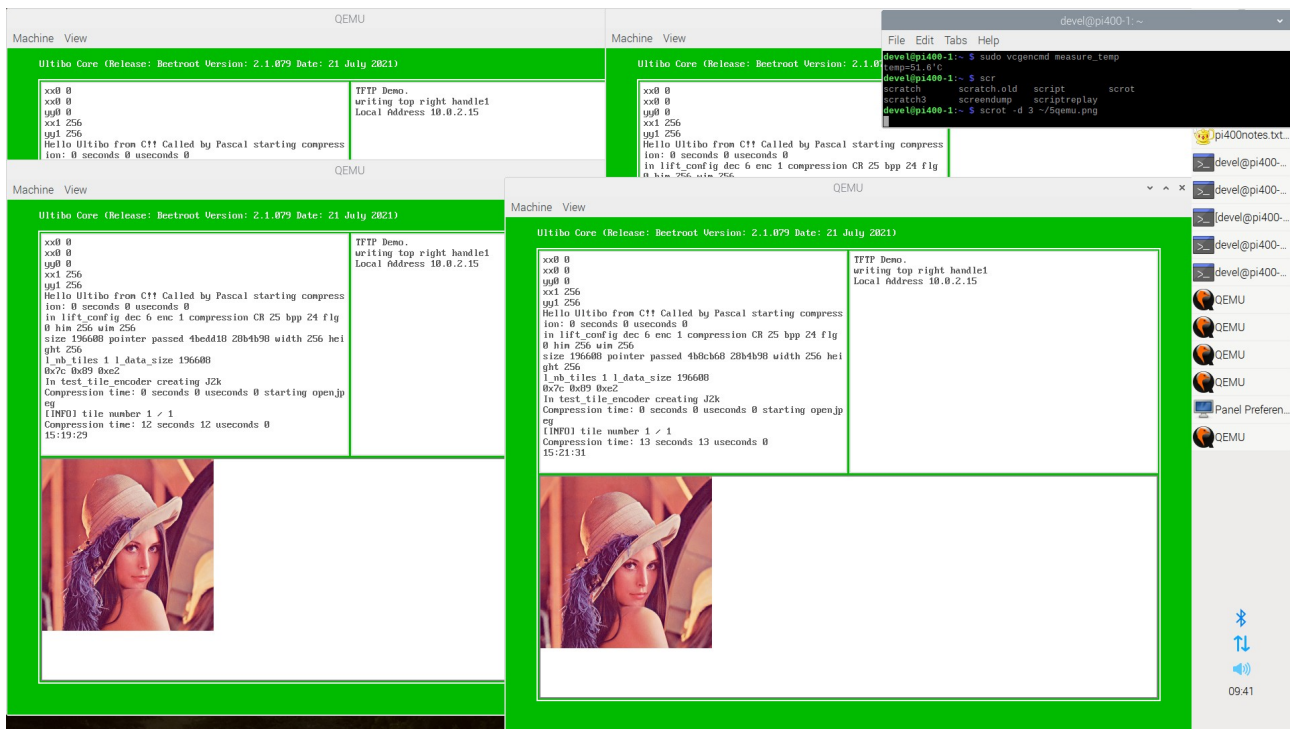
QEMU is a [hosted virtual machine monitor](#): it emulates the machine's [processor](#) through dynamic [binary translation](#) and provides a set of different hardware and device models for the machine, enabling it to run a variety of [guest operating systems](#). It also can be used with [Kernel-based Virtual Machine](#) (KVM) to run virtual machines at near-native speed (by taking advantage of hardware extensions such as [Intel VT-x](#)). QEMU can also do emulation for user-level processes, allowing applications compiled for one architecture to run on another.[\[3\]](#)

**Note : Additional software is needed to run QEMU “sudo apt-get install qemu-system-arm”.
The following programs are added.**

**/usr/bin/qemu-img /usr/bin/qemu-nbd /usr/bin/qemu-system-aarch64
/usr/bin/qemu-io /usr/bin/qemu-pr-helper /usr/bin/qemu-system-arm**

The command line for starting Lazarus IDE (Ultibo Edition) “~/ultibo/core/lazarus.sh”

Testing on pi400-1 with 40in Sony TV.



Step1 to create a kernel.bin

git clone git@github.com:develone/Ultibo_Projects.git

devel@pi400-1:~/Ultibo_Projects/jpeg2000/src \$./compile_ultibo.sh

The word count here should be 22

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

when ./libbuild.sh is executed should be 22

22 22 182 libopenjpg2_obj.txt

devel@pi400-1:~/Ultibo_Projects/jpeg2000/QEMU \$./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);
```

```
    ~~~~~
```

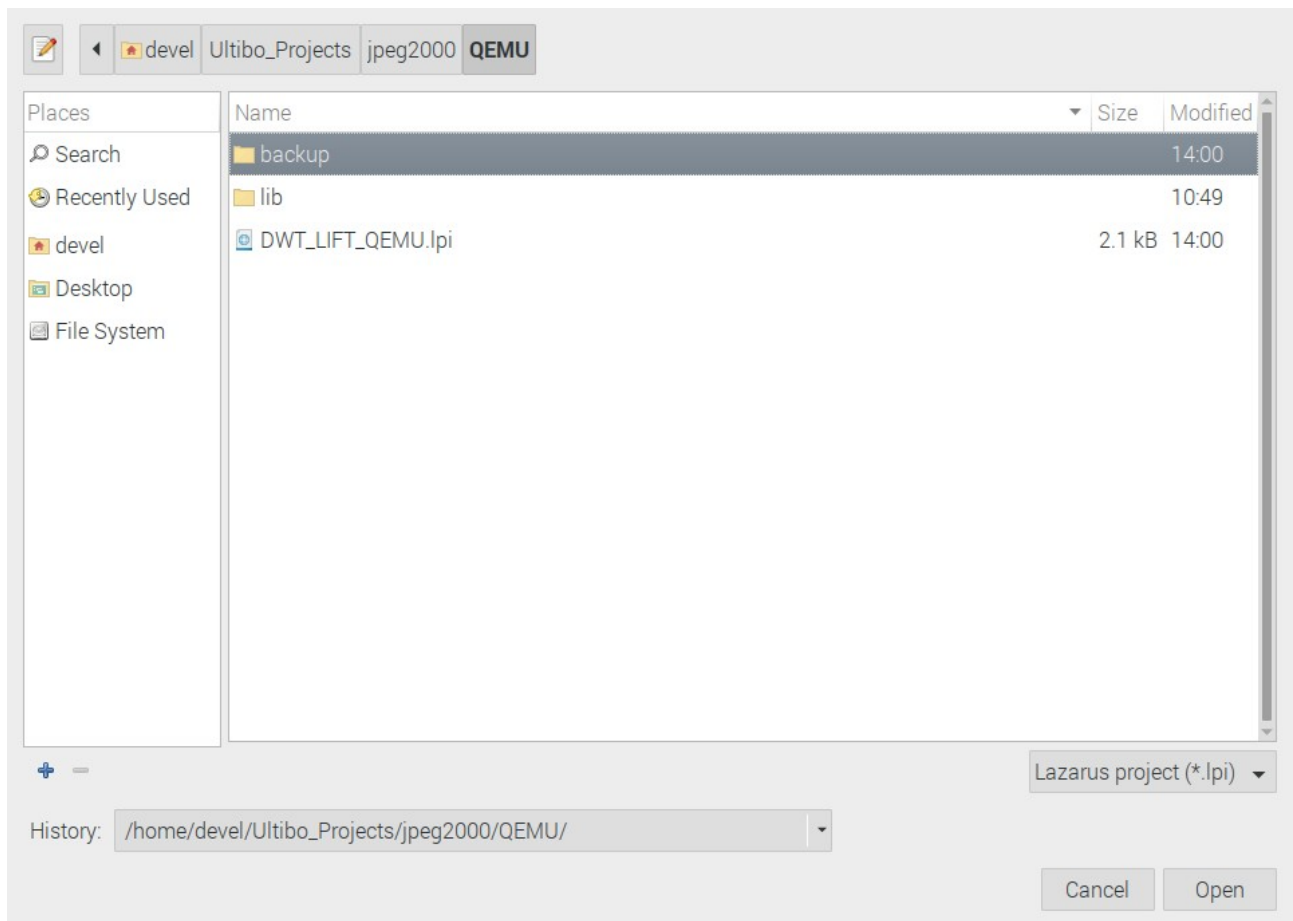
```
    opj_write_tile
```

when ./libbuild.sh is executed should be 23

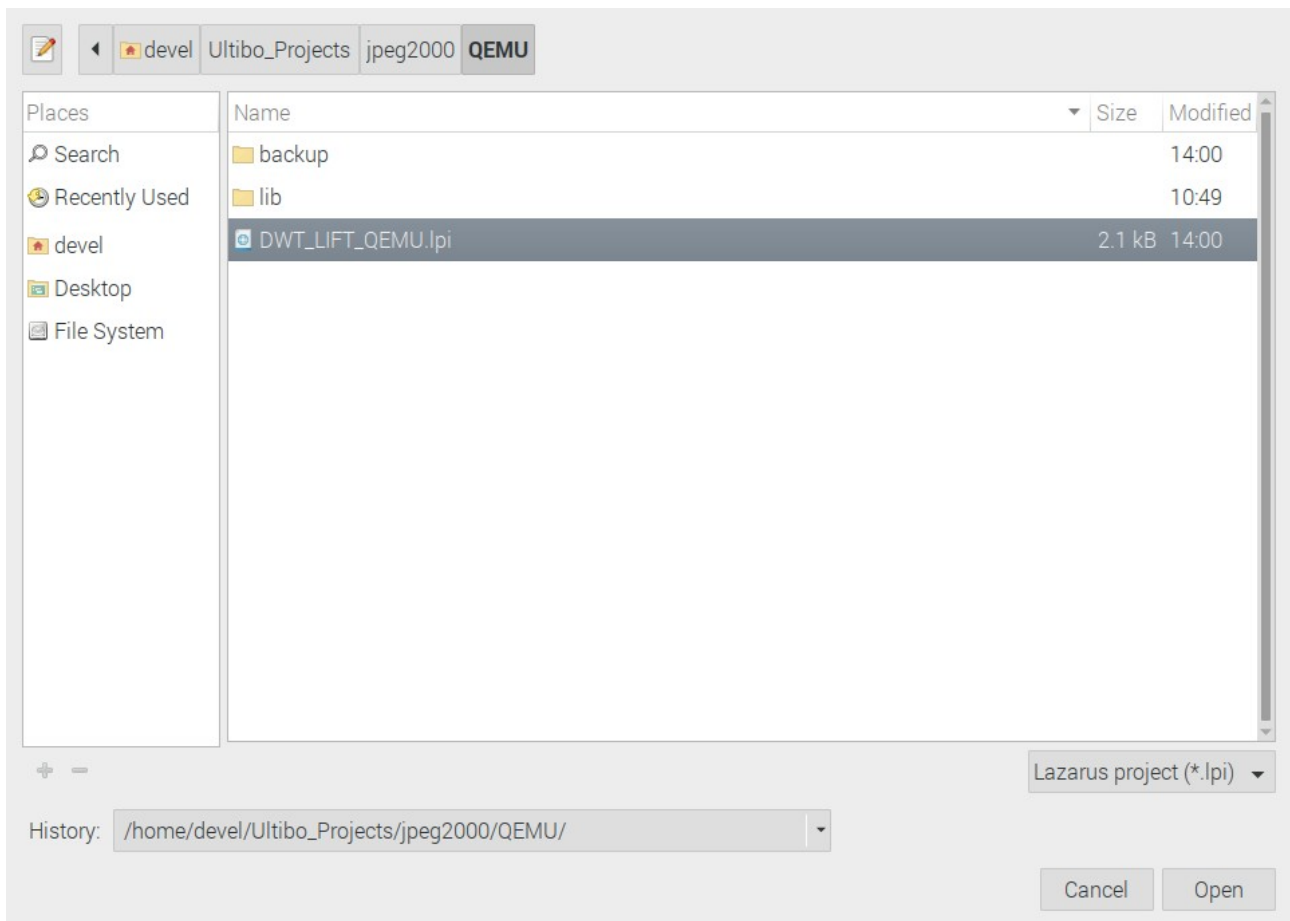
23 23 192 libdwtlift_obj.txt

A greater detailed on the above steps is found in QEMU-JPEG2000.odt.

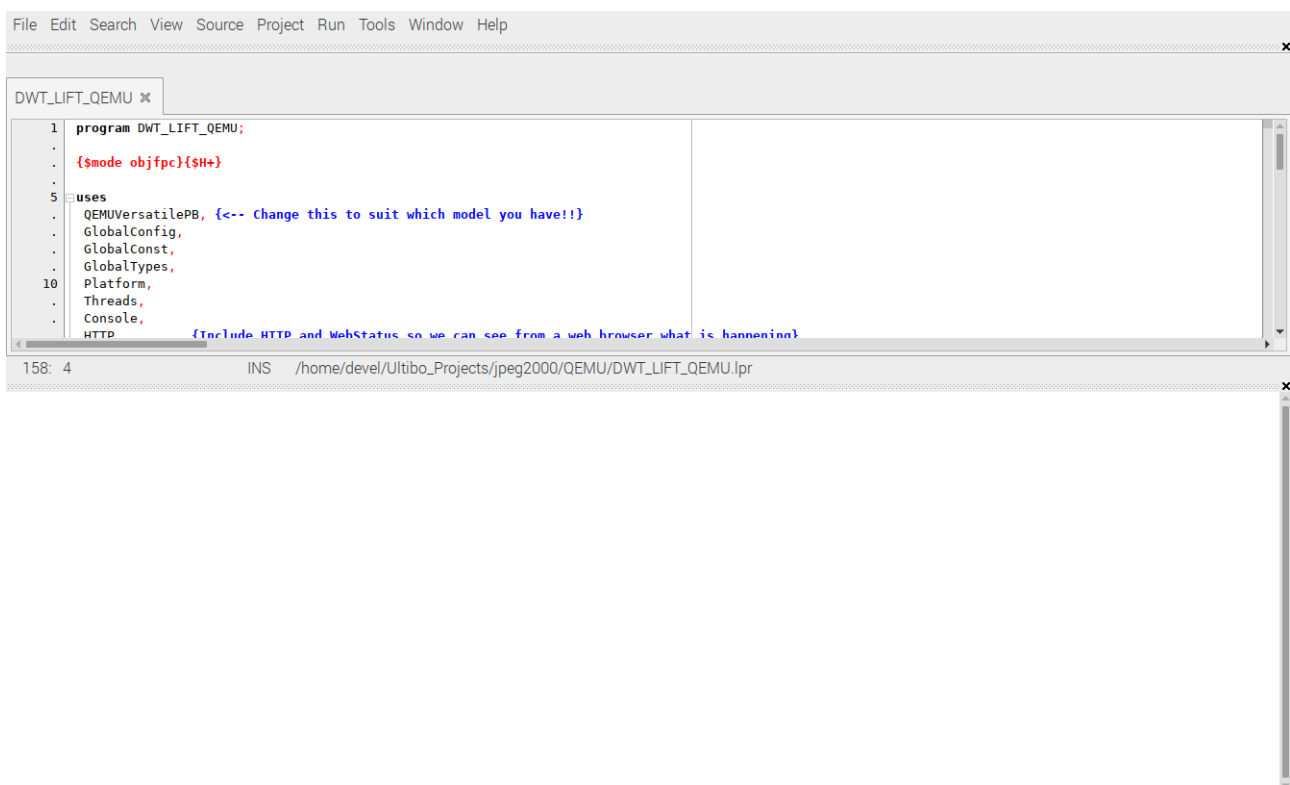
Project/Open Project



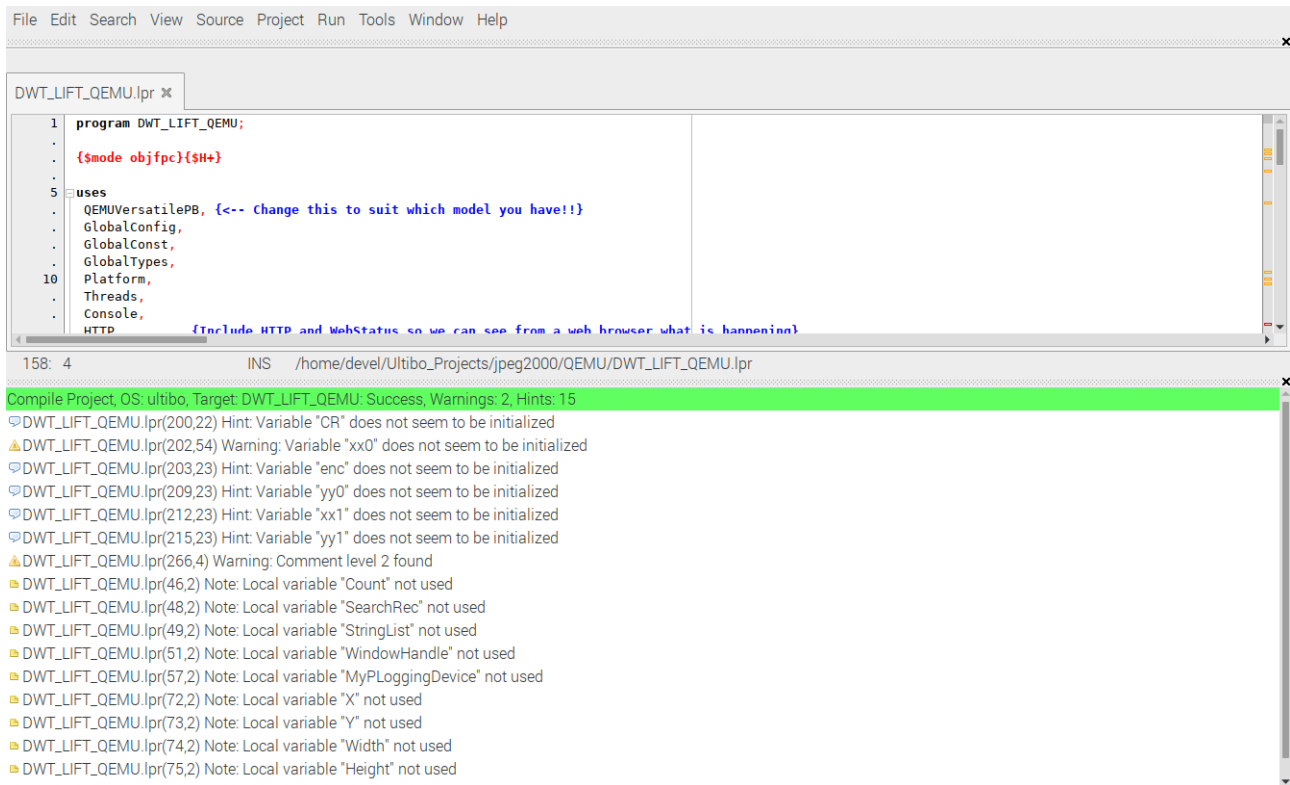
Select DWT_LIFT_QEMU.lpi



Depress Open



Run/Compile The kernel.bin is created when the Green bar appears.



```
File Edit Search View Source Project Run Tools Window Help
DWT_LIFT_QEMU.lpr x
1 program DWT_LIFT_QEMU;
.
. ($mode objfpc){$H+}
.
.
5 uses
. QEMUVersatilePB, {<-- Change this to suit which model you have!!}
. GlobalConfig,
. GlobalConst,
. GlobalTypes,
10 Platform,
. Threads,
. Console,
. HTTP {!include HTTP and WebStatus so we can see from a web browser what is happening!}

158: 4 INS /home/devel/Ultibo_Projects/jpeg2000/QEMU/DWT_LIFT_QEMU.lpr
Compile Project, OS: ultibo, Target: DWT_LIFT_QEMU: Success, Warnings: 2, Hints: 15
DWT_LIFT_QEMU.lpr(200,22) Hint: Variable "CR" does not seem to be initialized
DWT_LIFT_QEMU.lpr(202,54) Warning: Variable "xx0" does not seem to be initialized
DWT_LIFT_QEMU.lpr(203,23) Hint: Variable "enc" does not seem to be initialized
DWT_LIFT_QEMU.lpr(209,23) Hint: Variable "yy0" does not seem to be initialized
DWT_LIFT_QEMU.lpr(212,23) Hint: Variable "xx1" does not seem to be initialized
DWT_LIFT_QEMU.lpr(215,23) Hint: Variable "yy1" does not seem to be initialized
DWT_LIFT_QEMU.lpr(266,4) Warning: Comment level 2 found
DWT_LIFT_QEMU.lpr(46,2) Note: Local variable "Count" not used
DWT_LIFT_QEMU.lpr(48,2) Note: Local variable "SearchRec" not used
DWT_LIFT_QEMU.lpr(49,2) Note: Local variable "StringList" not used
DWT_LIFT_QEMU.lpr(51,2) Note: Local variable "WindowHandle" not used
DWT_LIFT_QEMU.lpr(57,2) Note: Local variable "MyLoggingDevice" not used
DWT_LIFT_QEMU.lpr(72,2) Note: Local variable "X" not used
DWT_LIFT_QEMU.lpr(73,2) Note: Local variable "Y" not used
DWT_LIFT_QEMU.lpr(74,2) Note: Local variable "Width" not used
DWT_LIFT_QEMU.lpr(75,2) Note: Local variable "Height" not used
```

```
devel@pi400-1:~/Ultibo_Projects/jpeg2000 $ cp -R QEMU/ QEMU1
devel@pi400-1:~/Ultibo_Projects/jpeg2000 $ cp -R QEMU/ QEMU2
devel@pi400-1:~/Ultibo_Projects/jpeg2000 $ cp -R QEMU/ QEMU3
devel@pi400-1:~/Ultibo_Projects/jpeg2000 $ cp -R QEMU/ QEMU4
```

```
devel@pi400-1:~ $ sudo vcgencmd measure_temp
temp=31.6'C
```

The heat sync on pi400 maintains a good temperature.

```
sudo vcgencmd measure_temp
[sudo] password for devel:
temp=44.3'C
```