

***** Draft *****

Ultibo provides bare metal programming for the Rpi-Zero, RP2B, and RPi3B Compiling Ultibo Edition for Raspberry Pi (Rpi)

01/08/17

Based on information found at https://ultibo.org/wiki/Building_for_Raspbian

The scripts and config files are found at https://github.com/develone/jpeg-2000-test/tree/master/bare-metal/build_ultibo_RPi

Current Errors

*fpc -B -Tultibo -Parm -CpARMV6 -WpRPIB @/home/pi/ultibo/core/fpc/bin/rpi.cfg -O2
UltiboDemoRpi2.lpr*

Free Pascal Compiler version 3.1.1 [2017/01/08] for arm

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Target OS: Ultibo

Compiling UltiboDemoRpi2.lpr

UltiboDemoRpi2.lpr(17,2) Fatal: Can't find unit RaspberryPi2 used by UltiboDemoRpi2

Fatal: Compilation aborted

Error: /home/pi/ultibo/core/fpc/bin/ppcarm returned an error exitcode

*fpc -B -Tultibo -Parm -CpARMV7A -WpRPI2B @/home/pi/ultibo/core/fpc/bin/rpi2.cfg -O2
UltiboDemoRpi.lpr*

Free Pascal Compiler version 3.1.1 [2017/01/08] for arm

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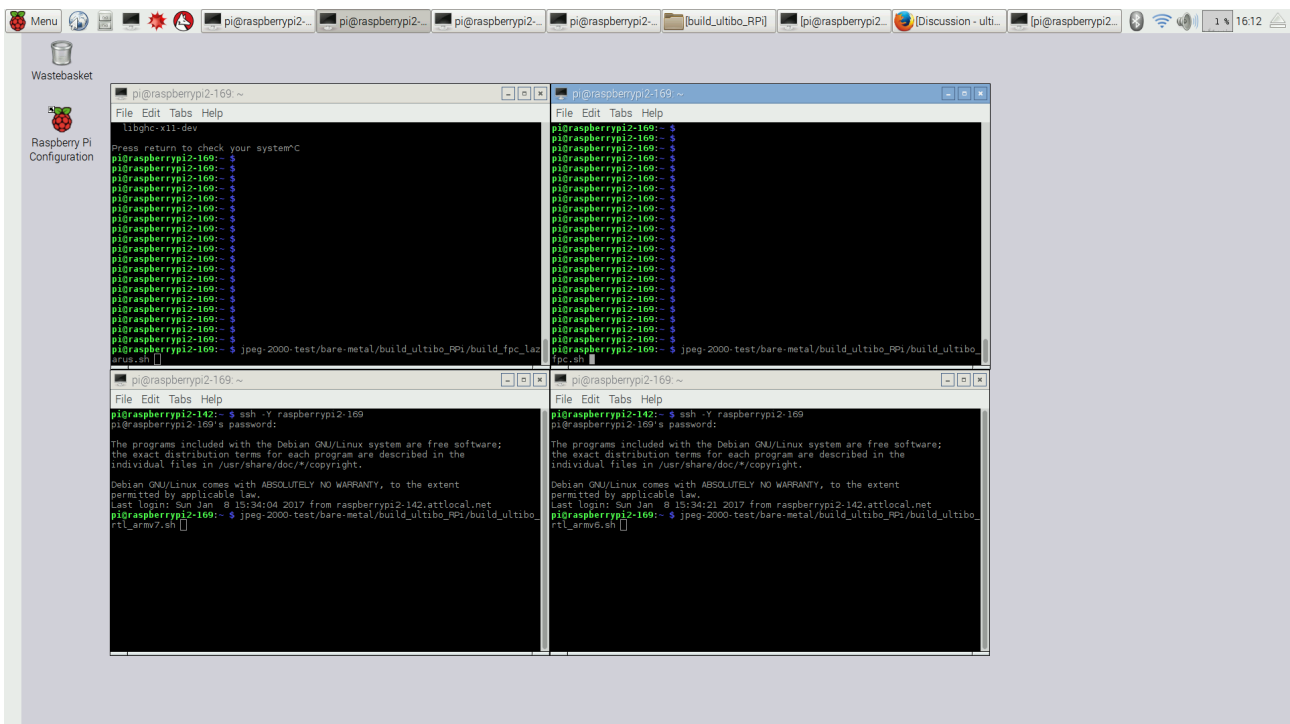
Target OS: Ultibo

Compiling UltiboDemoRpi.lpr

UltiboDemoRpi.lpr(17,2) Fatal: Can't find unit RaspberryPi used by UltiboDemoRpi

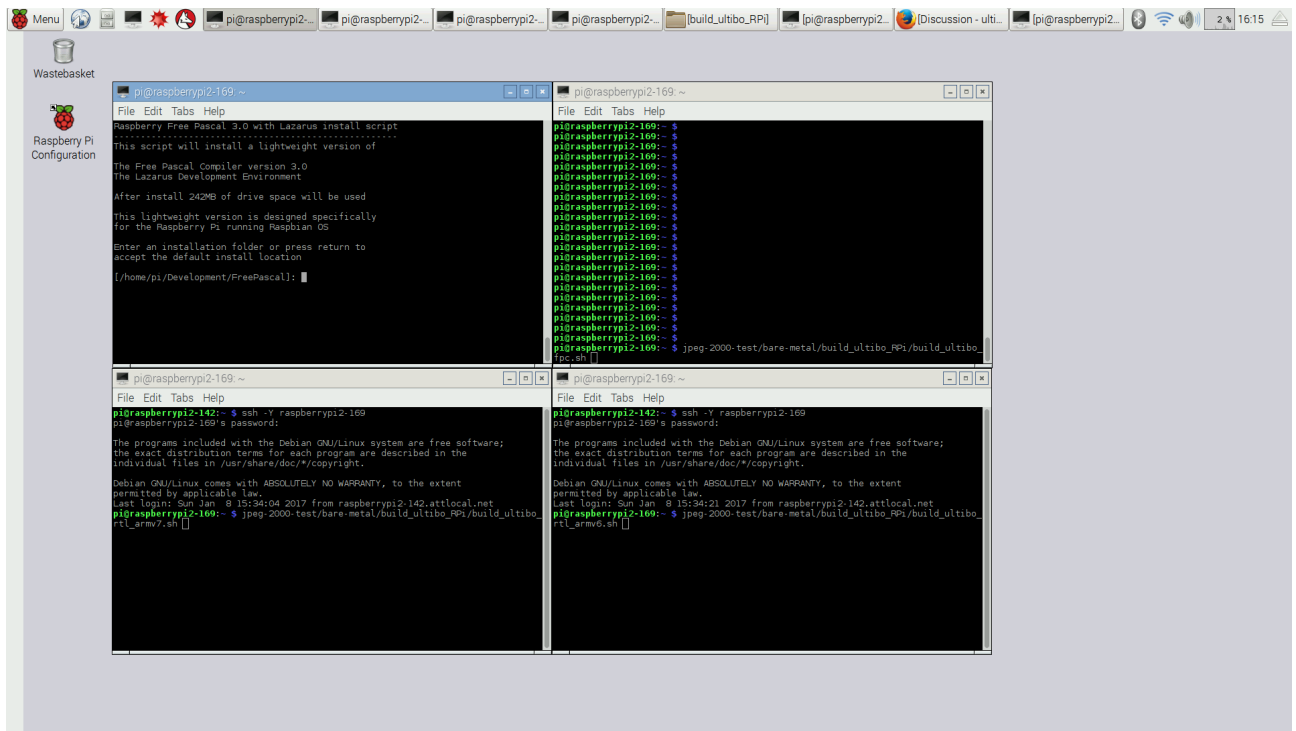
Fatal: Compilation aborted

Error: /home/pi/ultibo/core/fpc/bin/ppcarm returned an error exitcode

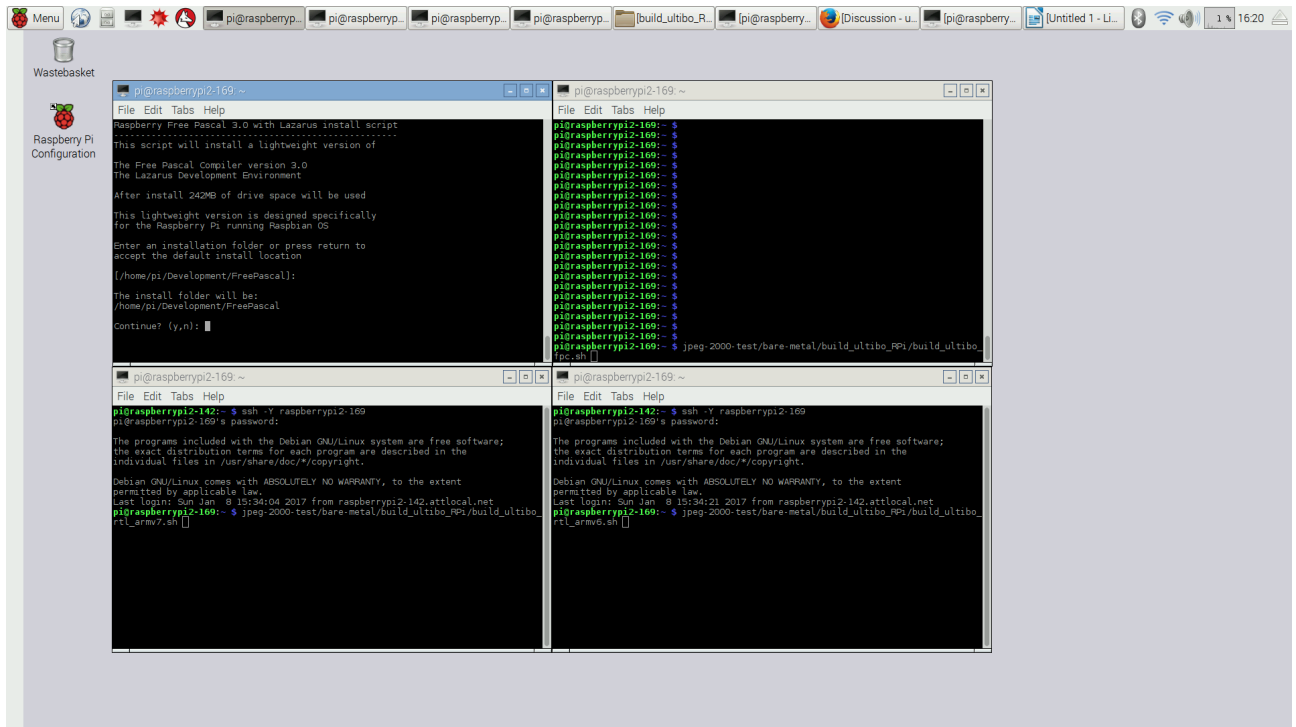


[illegible]

The screenshot displays a Raspberry Pi desktop environment with four terminal windows open. The top-left window, titled 'pi@raspberrypi2:~', shows the installation of prerequisites for Free Pascal and Lazarus on Raspbian. The top-right window, also titled 'pi@raspberrypi2:~', shows the same prerequisites being installed. The bottom-left window, titled 'pi@raspberrypi2:~', shows the installation of the 'libgtk2.0-dev' package. The bottom-right window, titled 'pi@raspberrypi2:~', shows the installation of the 'libgtk2.0-dev' package. The desktop includes icons for Menu, Wastebasket, Raspberry Pi Configuration, and a taskbar at the top with various system icons and the time 16:14.

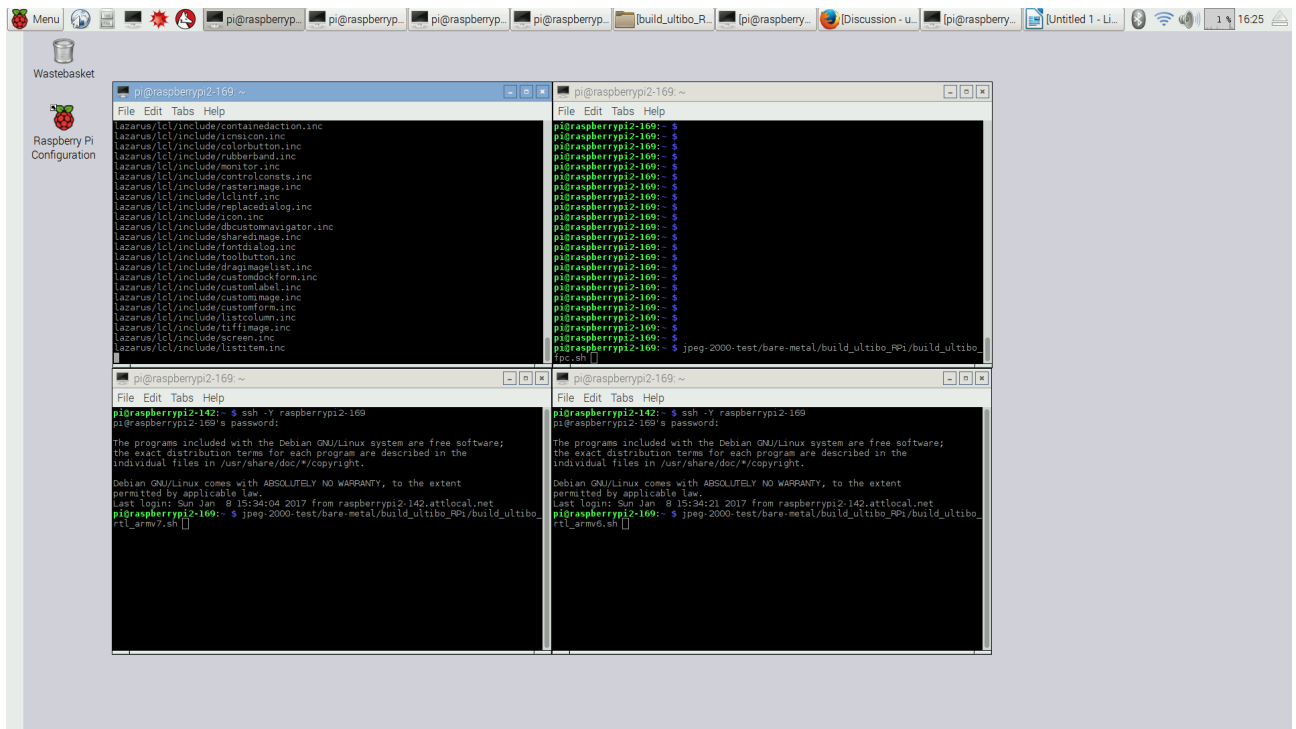


E

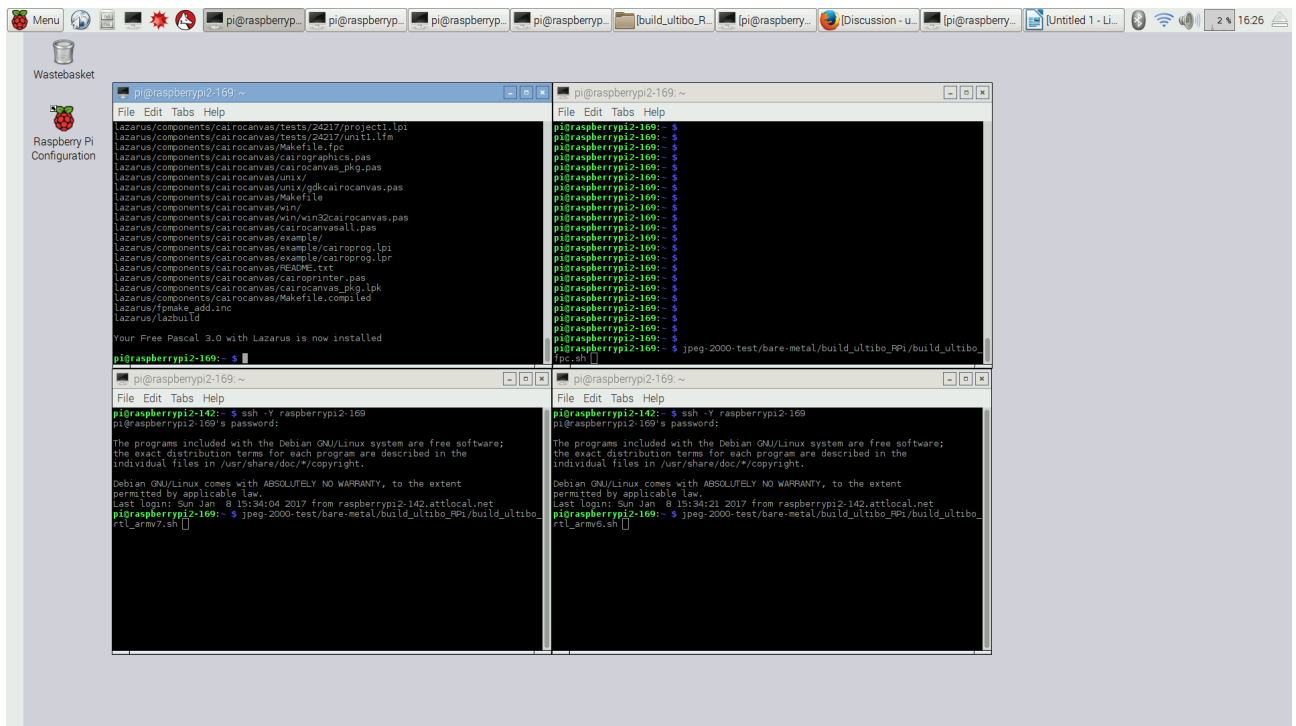


F





I

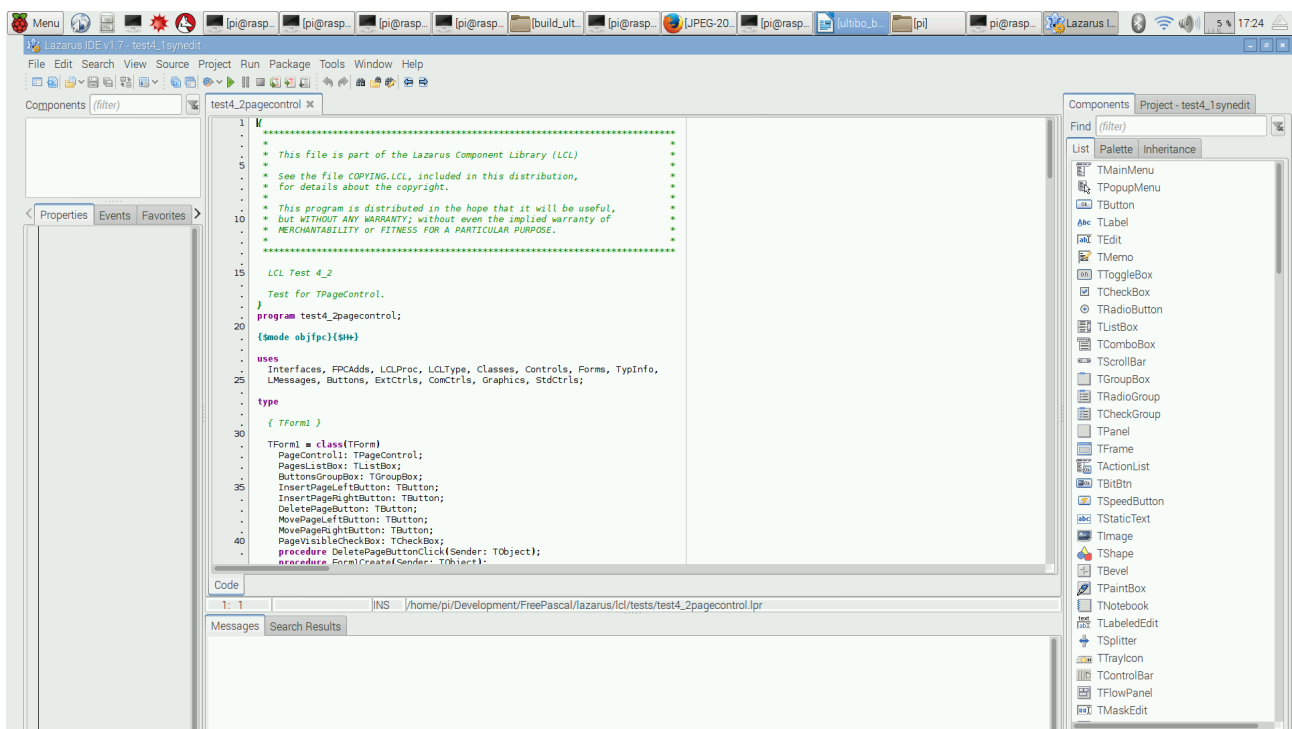


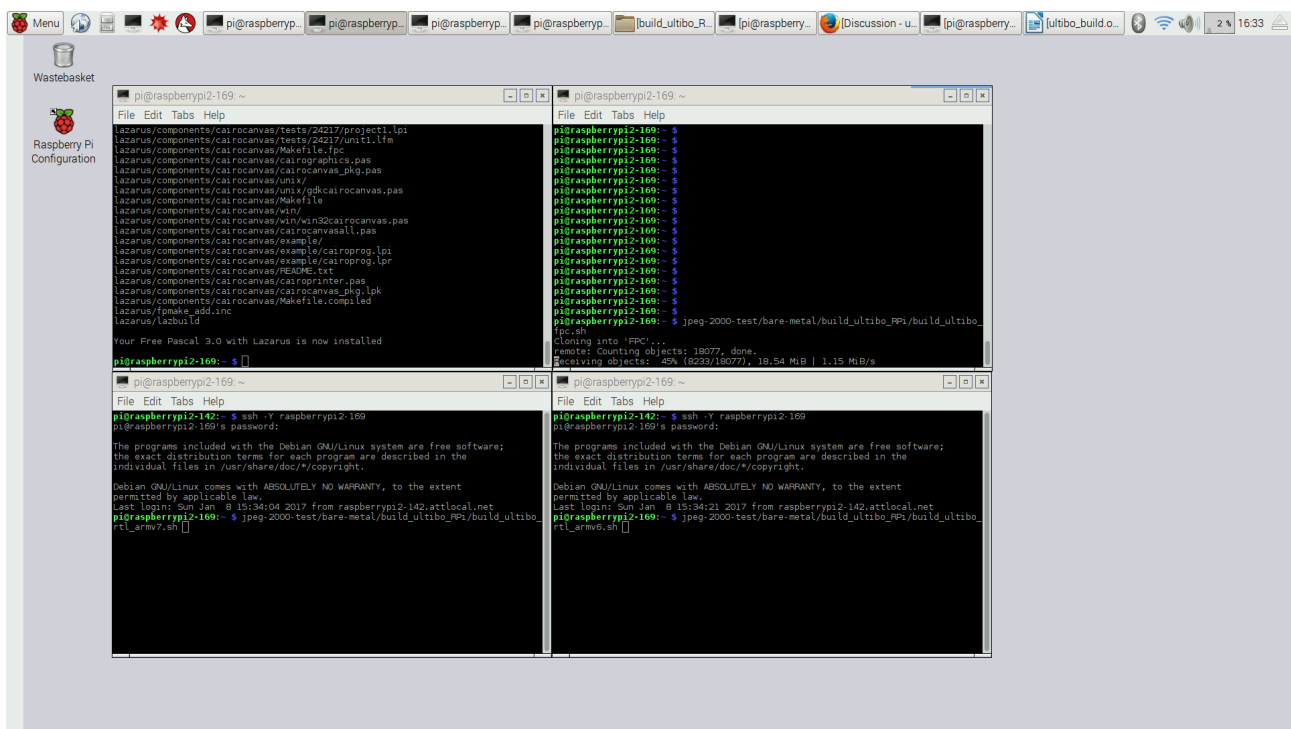
When the first shell, in the upper left hand corner, returns to the prompt the sources of fpc 3.0 and Lazarus have been downloaded and compiled. The 3.0 version of fpc will be used to compile the Ultibo Edition which is 3.1.1. This version is located at Development/FreePascal/fpc freepascal.desktop lazarus lazarus.desktop.

pi@raspberrypi2-142:~/Development/FreePascal/lazarus \$./startlazarus

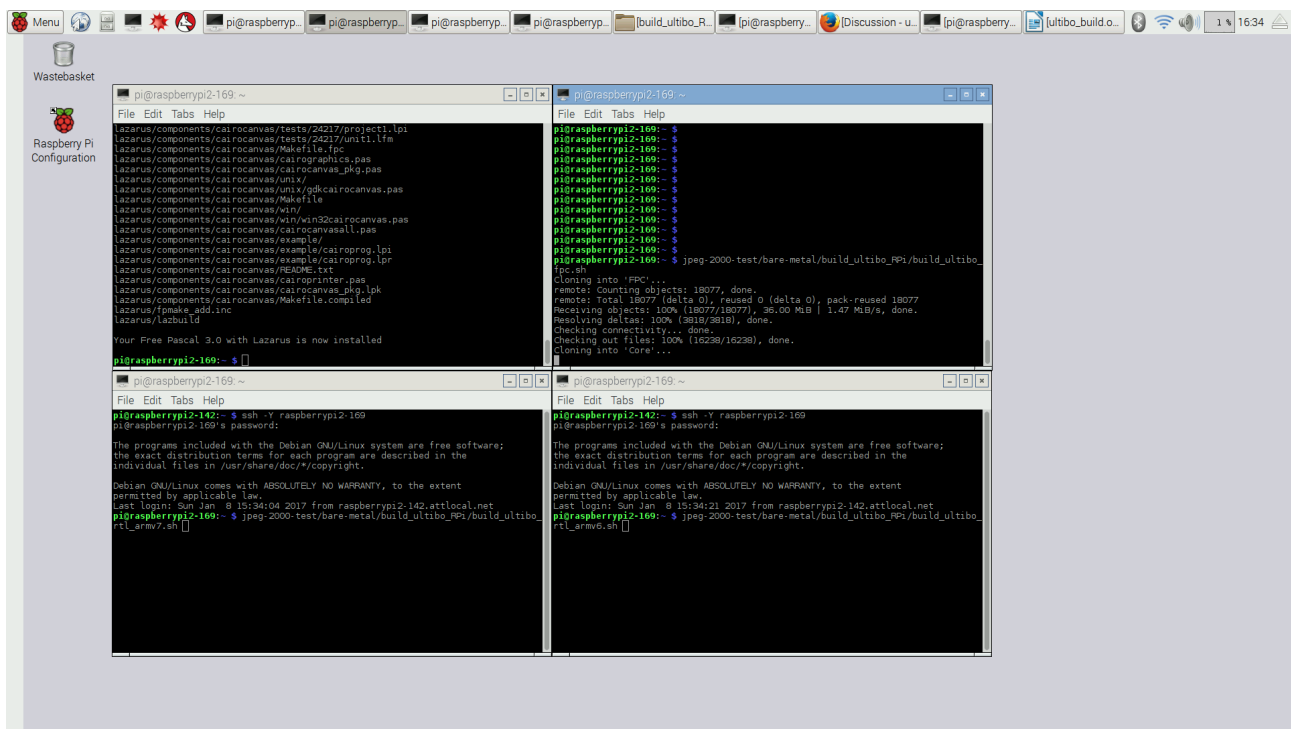


This is Lazarus with the first example opened.

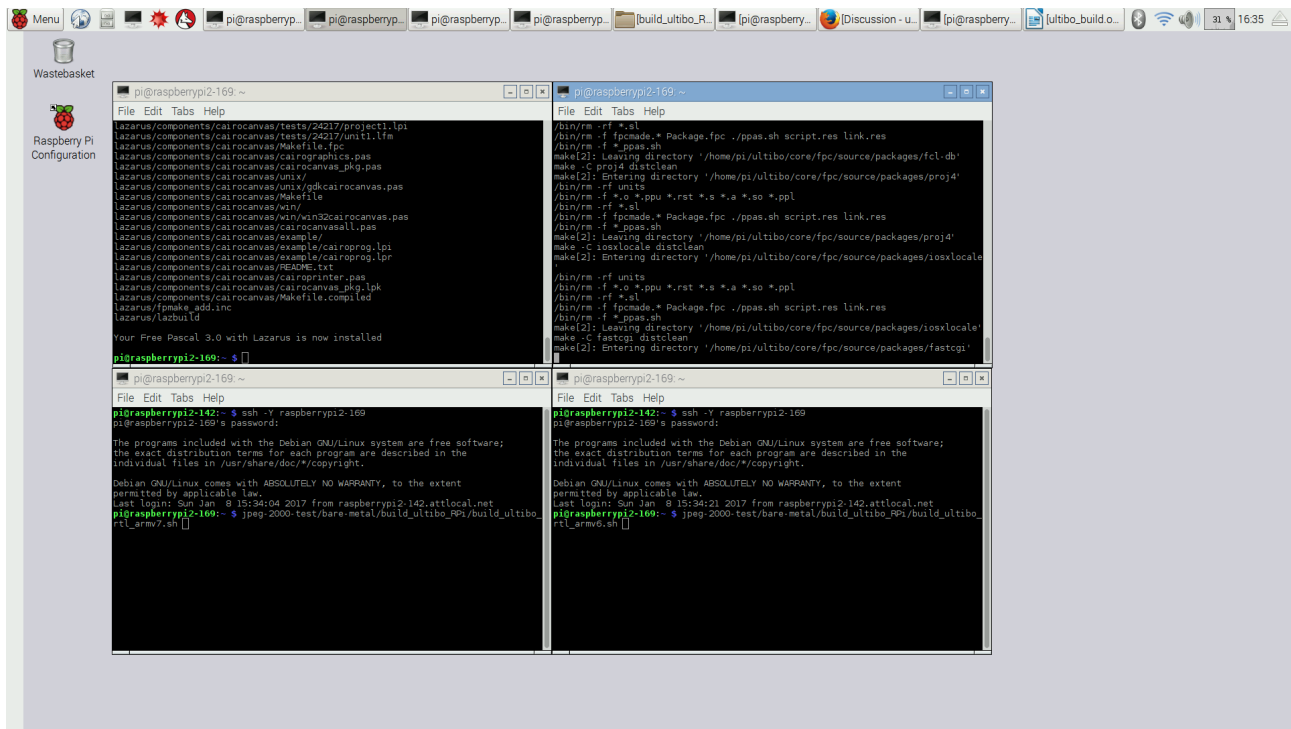




K



L



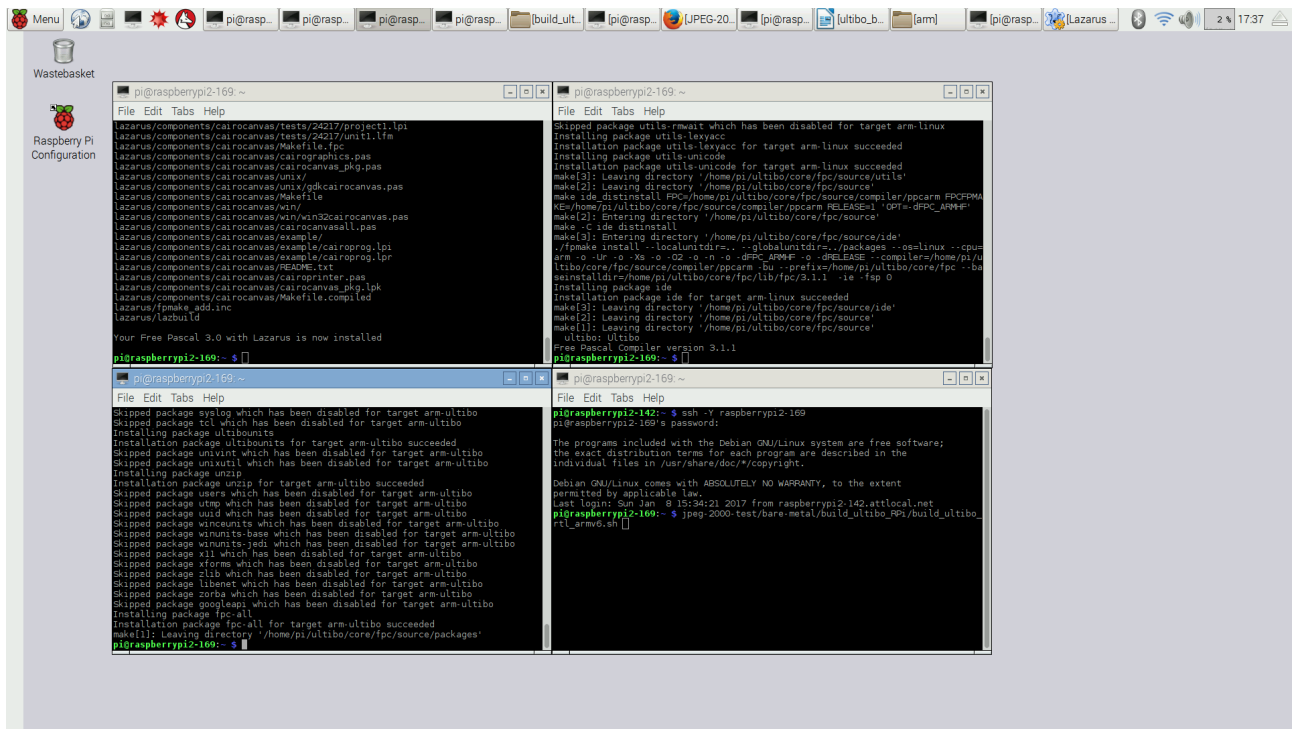
M

In the upper right hand window many applications are being compiled for fpc 3.1.1.

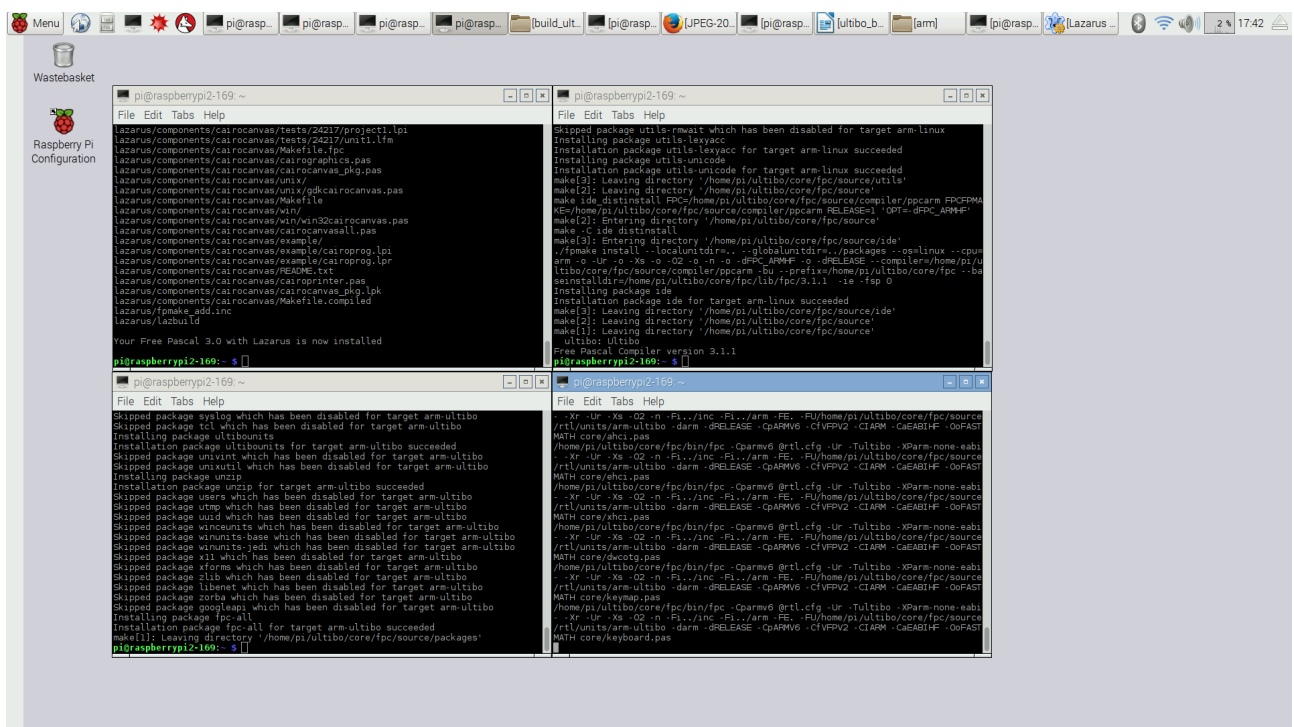
ls lib/fpc/3.1.1/units/arm-linux/

```
a52      fcl-registry hermes      ncurses  rtl-extra
aspell   fcl-res      httpd22  newt     rtl-objpas
bfd      fcl-sdo      httpd24  numlib   rtl-unicode
bzip2    fcl-sound  ibase    odbc     sdl
cairo    fcl-stl    iconvenc oggvorbis sqlite
cdrom    fcl-web     imagemagick openal   svgalib
chm      fcl-xml    imlib    opengl   symbolic
dblib    fftw        jni      opengles syslog
dbus     fpgtk       ldap     openssl  tcl
dts      fpindexer libcurl   oracle   unzip
fastcgi  fpmkunit    libenet  pasjpeg  users
fcl-async fppkg      libgd    paszlib  utils-lexyacc
fcl-base fv         libmicrohttpd pcap     utmp
fcl-db   gdbint    libpng   postgres uuid
fcl-extra gdbm     libsee   proj4    x11
fcl-fpcunit ggi       libtar   ptc      xforms
fcl-image gmp       libvlc   pthreads zlib
fcl-js   gnome1    libxml2  pxmlib   zorba
fcl-json googleapi lua      regexpr
fcl-net  gtk1      mad      rsvg
fcl-passrc gtk2     modplug  rtl
fcl-process hash     mysql    rtl-console
```

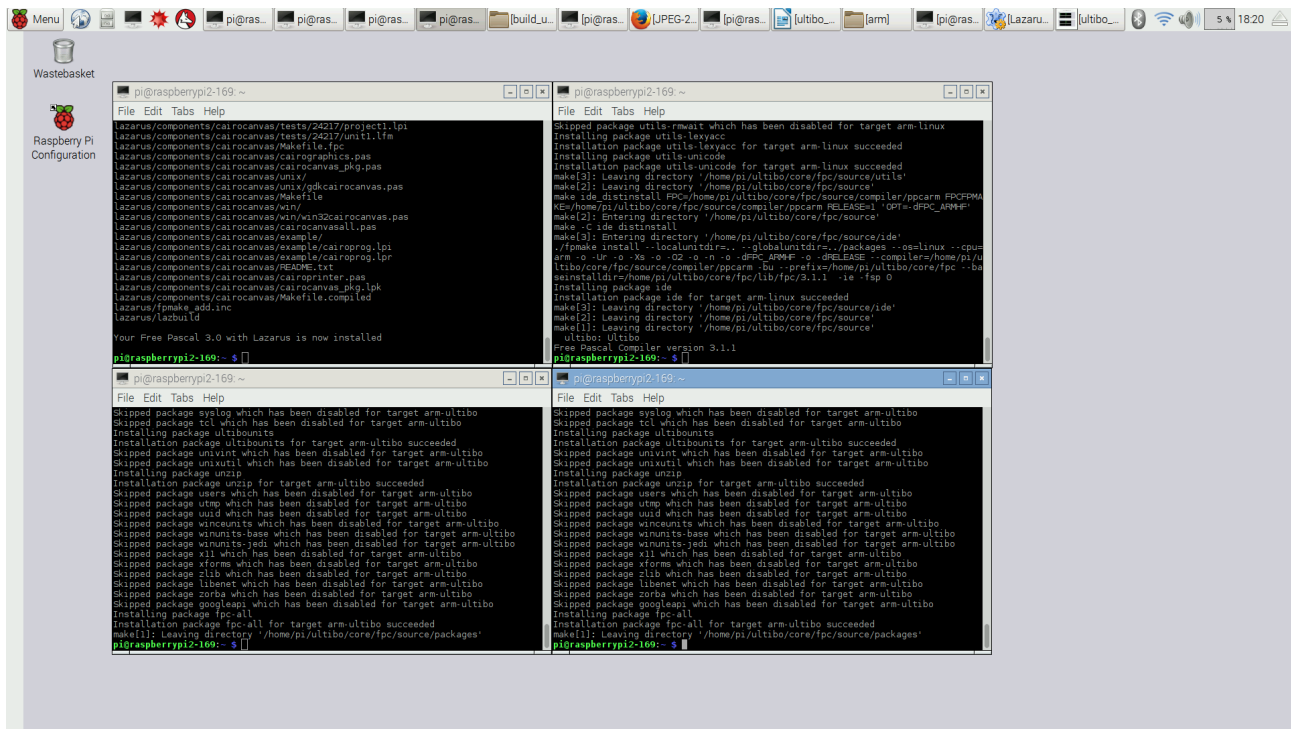
Ultibo for the ARMv7 is compiled in the lower left hand window. ARMv7 is the processor of the Rpi3B.



Ultibo for the ARMv6 is compiled in the lower right hand window. ARMv6 is the processor of the Rpi2B and Pi-Zero.



ARM6v



Now the configurations files need to added to the /home/pi/ultibo/fpc/bin/ foldered.

```
pi@raspberrypi2-169:~$ cp jpeg-2000-test/bare-metal/build_ultibo_RPi/rpi*.cfg
ultibo/core/fpc/bin
```

```
mkdir test_ultibo
```

```
cd test_ultibo
```

```
git clone https://github.com/ultibohub/Demo.git
```

```
cd Demo
```

```
export PATH=/home/pi/ultibo/core/fpc/bin:$PATH
```

```
fpc -B -Tultibo -Parm -CpARMV7A -WpRPI3B @/home/pi/ultibo/core/fpc/bin/rpi3.cfg -O2
UltiboDemoRPI3.lpr
```

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Target OS: Ultibo

Compiling UltiboDemoRPI3.lpr

Compiling DemoMain.pas

Assembling demomain

Assembling ultibodemorpi3

Linking UltiboDemoRPI3

1766 lines compiled, 4.9 sec, 2609932 bytes code, 84440 bytes data