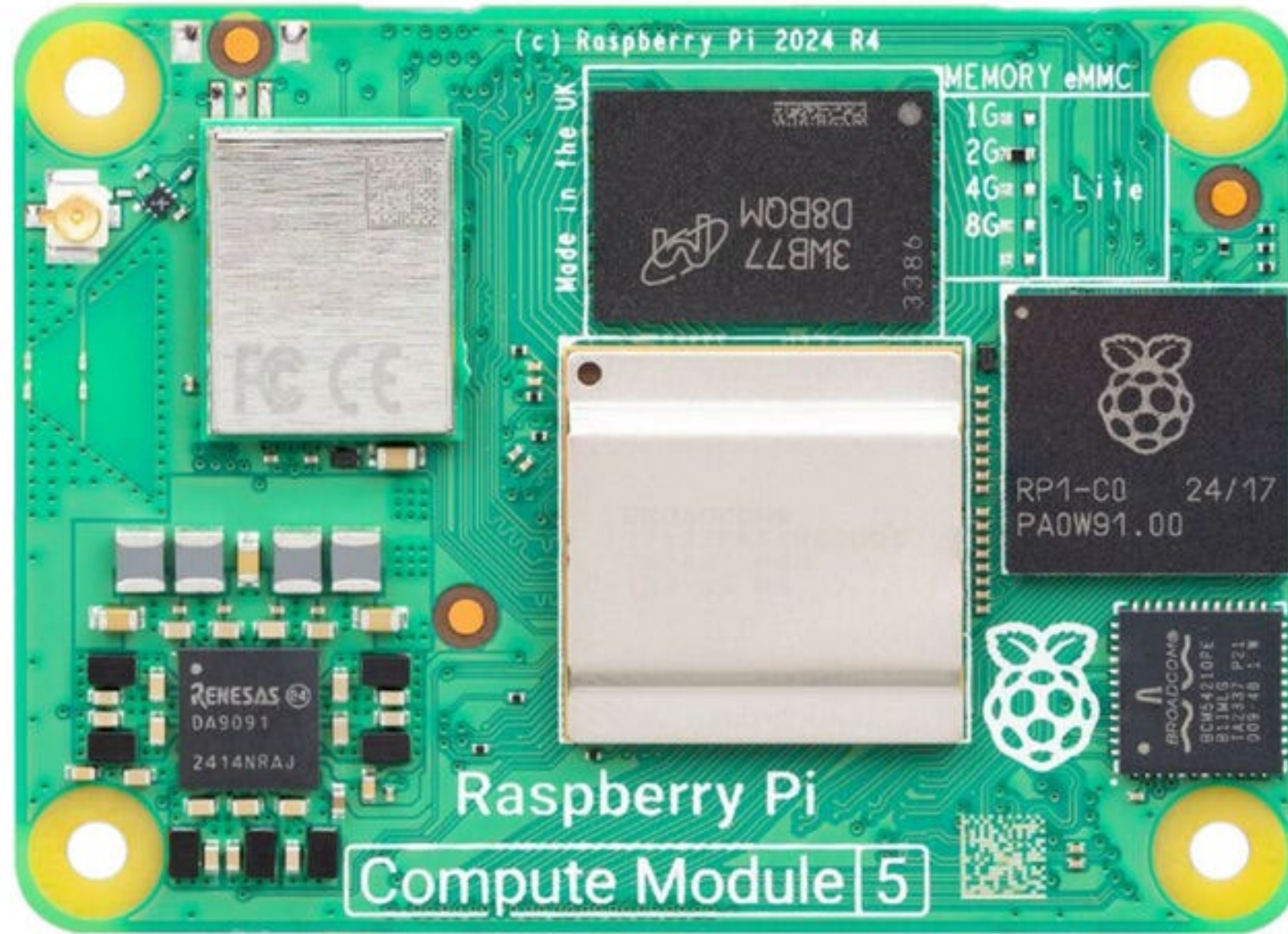
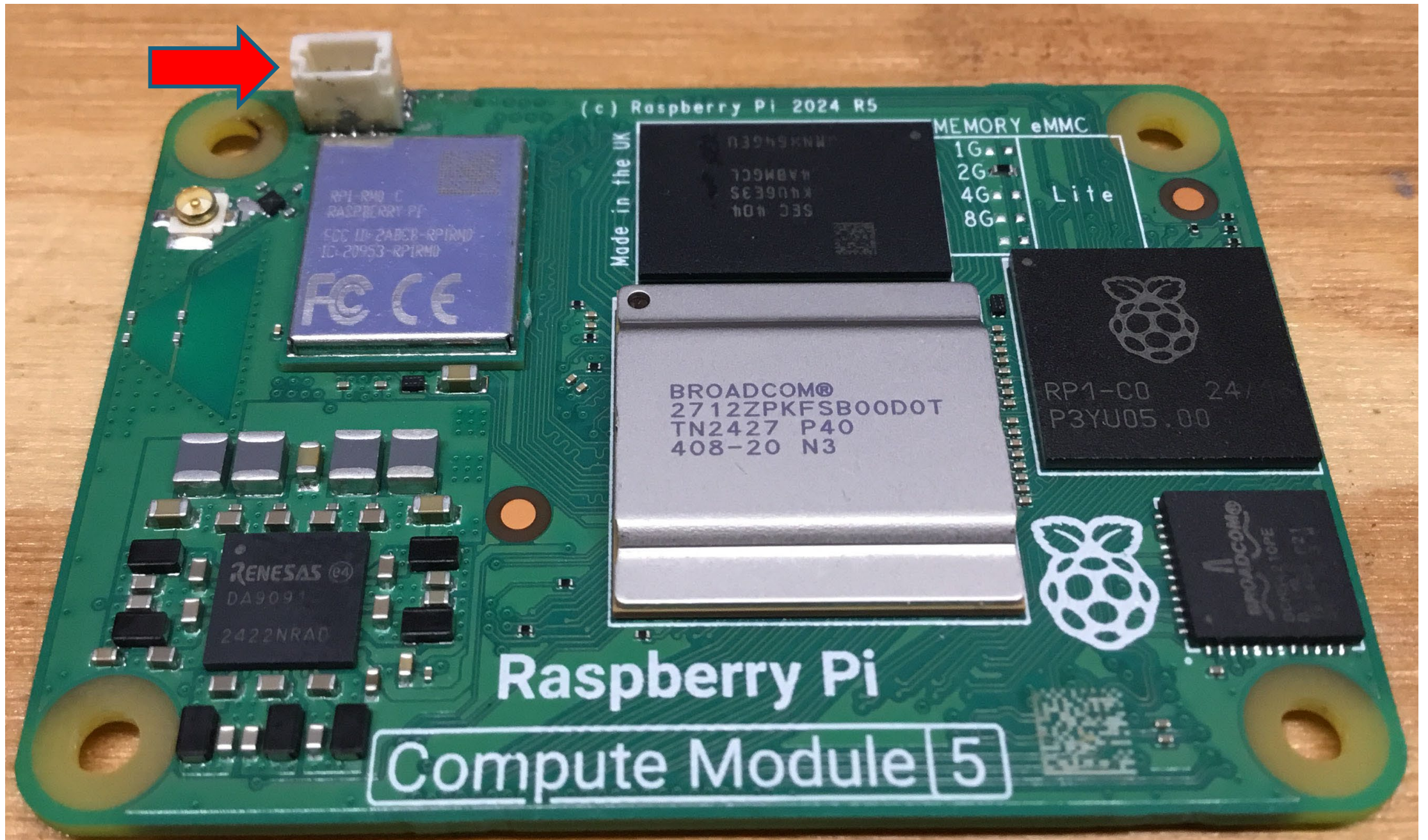


Yocto Project Raspberry Pi CM5



Add Debug UART Header

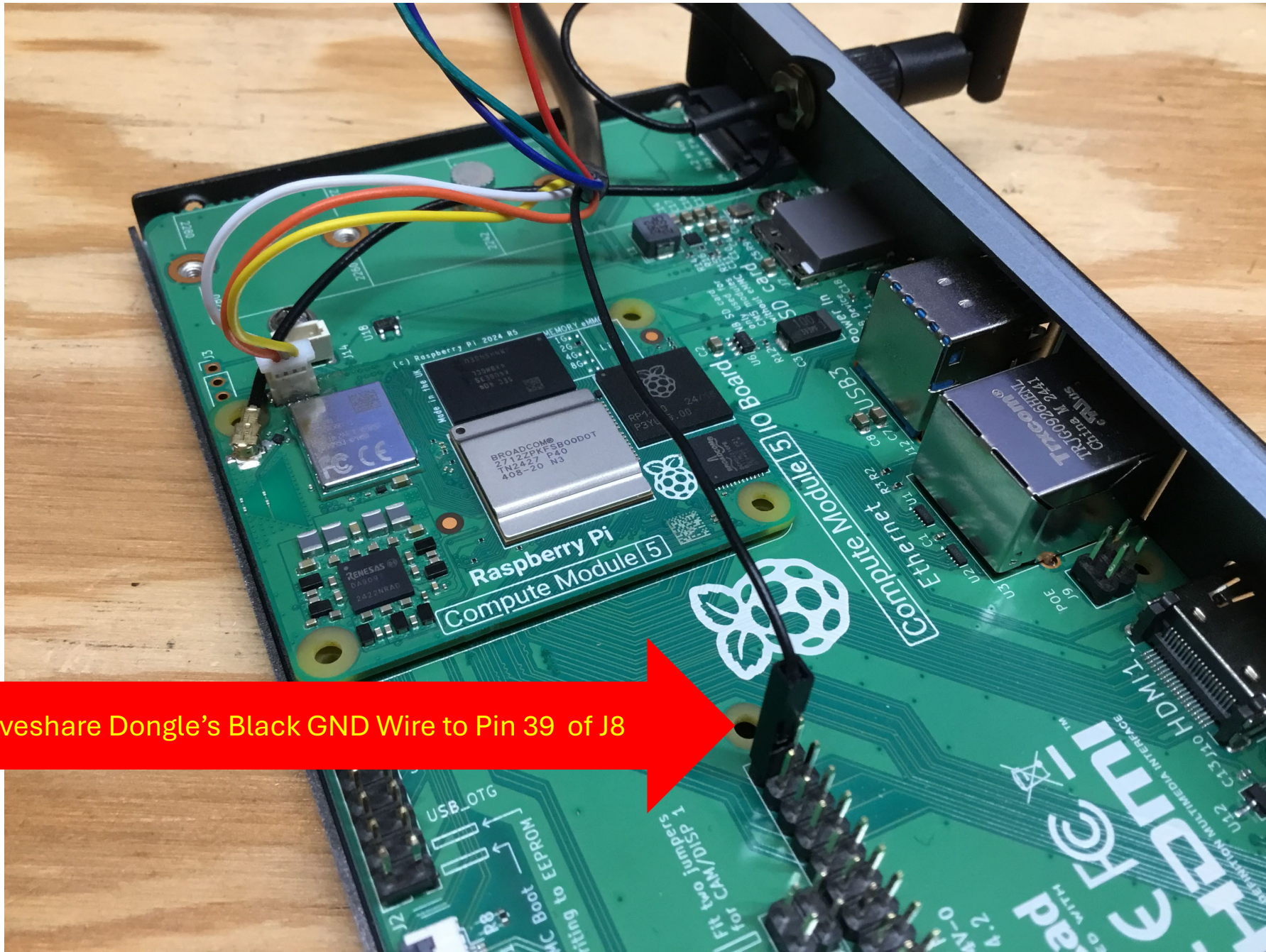


Waveshare USB To TTL Dongle



1mm Debug UART
Connector

Waveshare USB To TTL Dongle



Connect Waveshare Dongle's Black GND Wire to Pin 39 of J8

Install Essential Build Packages



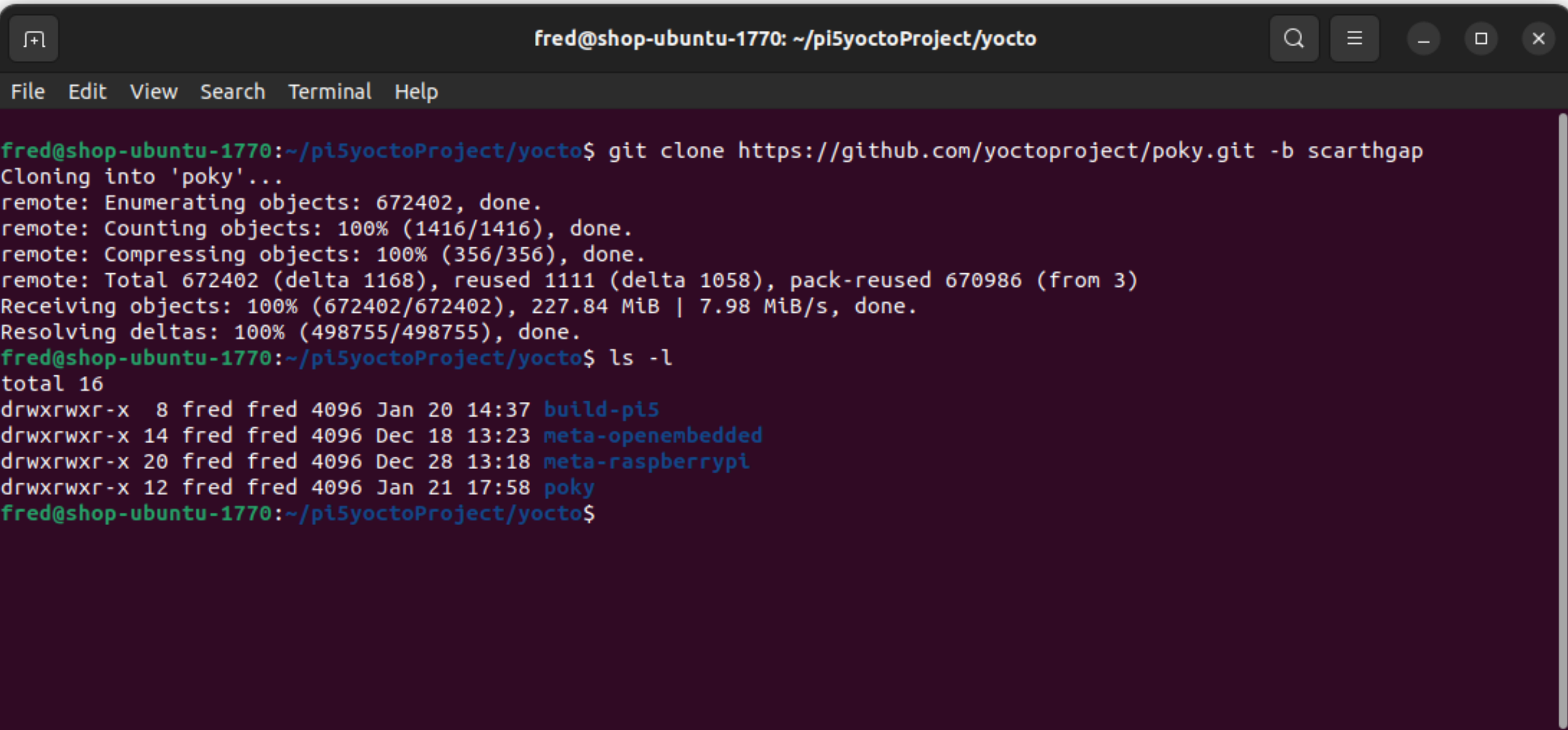
A terminal window titled "fred@shop-ubuntu-1770: ~" with a menu bar containing "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal displays the command to install various build packages.

```
fred@shop-ubuntu-1770:~$ sudo apt install build-essential chrpath cpio debianutils diffstat file gawk gcc git iputils-ping libacl1 liblz4-tool locales python3 python3-git python3-jinja2 python3-pexpect python3-pip python3-subunit socat texinfo unzip wget xz-utils zstd
```

Clone meta-openembedded and meta-raspberrypi

```
fred@pi5-yocto: ~/pi5yoctoProject/yocto
File Edit View Search Terminal Help
fred@pi5-yocto:~/pi5yoctoProject/yocto$ git clone https://github.com/openembedded/meta-openembedded.git
Cloning into 'meta-openembedded'...
remote: Enumerating objects: 274545, done.
remote: Counting objects: 100% (926/926), done.
remote: Compressing objects: 100% (422/422), done.
remote: Total 274545 (delta 604), reused 504 (delta 504), pack-reused 273619 (from 3)
Receiving objects: 100% (274545/274545), 78.95 MiB | 7.23 MiB/s, done.
Resolving deltas: 100% (165457/165457), done.
fred@pi5-yocto:~/pi5yoctoProject/yocto$ git clone https://github.com/agherzan/meta-raspberrypi.git
Cloning into 'meta-raspberrypi'...
remote: Enumerating objects: 11579, done.
remote: Counting objects: 100% (1014/1014), done.
remote: Compressing objects: 100% (478/478), done.
remote: Total 11579 (delta 727), reused 538 (delta 536), pack-reused 10565 (from 3)
Receiving objects: 100% (11579/11579), 3.92 MiB | 5.05 MiB/s, done.
Resolving deltas: 100% (6198/6198), done.
fred@pi5-yocto:~/pi5yoctoProject/yocto$
```

Clone Poky



A terminal window titled "fred@shop-ubuntu-1770: ~/pi5yoctoProject/yocto" with a dark background. The window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal output shows the cloning of the Poky project from GitHub. The command used is `git clone https://github.com/yoctoproject/poky.git -b scarthgap`. The output includes progress information for enumerating, counting, and compressing objects, as well as receiving and resolving deltas. Finally, the `ls -l` command is run, showing a directory listing with four entries: `build-pi5`, `meta-openembedded`, `meta-raspberrypi`, and `poky`.

```
fred@shop-ubuntu-1770:~/pi5yoctoProject/yocto$ git clone https://github.com/yoctoproject/poky.git -b scarthgap
Cloning into 'poky'...
remote: Enumerating objects: 672402, done.
remote: Counting objects: 100% (1416/1416), done.
remote: Compressing objects: 100% (356/356), done.
remote: Total 672402 (delta 1168), reused 1111 (delta 1058), pack-reused 670986 (from 3)
Receiving objects: 100% (672402/672402), 227.84 MiB | 7.98 MiB/s, done.
Resolving deltas: 100% (498755/498755), done.
fred@shop-ubuntu-1770:~/pi5yoctoProject/yocto$ ls -l
total 16
drwxrwxr-x  8 fred fred 4096 Jan 20 14:37 build-pi5
drwxrwxr-x 14 fred fred 4096 Dec 18 13:23 meta-openembedded
drwxrwxr-x 20 fred fred 4096 Dec 28 13:18 meta-raspberrypi
drwxrwxr-x 12 fred fred 4096 Jan 21 17:58 poky
fred@shop-ubuntu-1770:~/pi5yoctoProject/yocto$
```

Specify the scarthgap Branch



fred@pi5-yocto: ~/pi5yoctoProject/yocto/meta-raspberrypi



File Edit View Search Terminal Help

```
fred@pi5-yocto:~/pi5yoctoProject/yocto/meta-openembedded$ git checkout scarthgap
Branch 'scarthgap' set up to track remote branch 'scarthgap' from 'origin'.
Switched to a new branch 'scarthgap'
fred@pi5-yocto:~/pi5yoctoProject/yocto/meta-openembedded$ cd ../
fred@pi5-yocto:~/pi5yoctoProject/yocto$ cd meta-raspberrypi/
fred@pi5-yocto:~/pi5yoctoProject/yocto/meta-raspberrypi$ git checkout scarthgap
Branch 'scarthgap' set up to track remote branch 'scarthgap' from 'origin'.
Switched to a new branch 'scarthgap'
fred@pi5-yocto:~/pi5yoctoProject/yocto/meta-raspberrypi$
```

Initialize the Build Shell Environment

```
fred@shop-ubuntu-1770: ~/pi5yoctoProject/yocto/build-pi5
fred@shop-ubuntu-1770:~/pi5yoctoProject/yocto$ source poky/oe-init-build-env build-pi5
This is the default build configuration for the Poky reference distribution.

### Shell environment set up for builds. ###

You can now run 'bitbake <target>'

Common targets are:
  core-image-minimal
  core-image-full-cmdline
  core-image-sato
  core-image-weston
  meta-toolchain
  meta-ide-support

You can also run generated qemu images with a command like 'runqemu qemux86-64'.

Other commonly useful commands are:
- 'devtool' and 'recipetool' handle common recipe tasks
- 'bitbake-layers' handles common layer tasks
- 'oe-pkgdata-util' handles common target package tasks
fred@shop-ubuntu-1770:~/pi5yoctoProject/yocto/build-pi5$
```

Populate the bblayers.conf File

⚙️ bblayers.conf ✕

```
yocto > build-pi5 > conf > ⚙️ bblayers.conf
```

```
1 # POKY_BBLAYERS_CONF_VERSION is increased each time build/conf/bblayers.conf
2 # changes incompatibly
3 POKY_BBLAYERS_CONF_VERSION = "2"
4
5 BBPATH = "${TOPDIR}"
6 BBFILES ?= ""
7
8 BBLAYERS ?= " \
9     /home/fred/pi5yoctoProject/yocto/poky/meta \
10    /home/fred/pi5yoctoProject/yocto/poky/meta-poky \
11    /home/fred/pi5yoctoProject/yocto/poky/meta-yocto-bsp \
12    /home/fred/pi5yoctoProject/yocto/meta-openembedded/meta-oe \
13    /home/fred/pi5yoctoProject/yocto/meta-openembedded/meta-python \
14    /home/fred/pi5yoctoProject/yocto/meta-openembedded/meta-networking \
15    /home/fred/pi5yoctoProject/yocto/meta-raspberrypi \
16    "
```

Set the Default Machine

local.conf ×

yocto > build-pi5 > conf > local.conf


```
17 # Machine Selection
18 #
19 # You need to select a specific machine to target the build with. There are a selection
20 # of emulated machines available which can boot and run in the QEMU emulator:
21 #
22 #MACHINE ?= "qemuarm"
23 #MACHINE ?= "qemuarm64"
24 #MACHINE ?= "qemumips"
25 #MACHINE ?= "qemumips64"
26 #MACHINE ?= "qemuppc"
27 #MACHINE ?= "qemux86"
28 #MACHINE ?= "qemux86-64"
29 #
30 # There are also the following hardware board target machines included for
31 # demonstration purposes:
32 #
33 #MACHINE ?= "beaglebone-yocto"
34 #MACHINE ?= "genericarm64"
35 #MACHINE ?= "genericx86"
36 #MACHINE ?= "genericx86-64"
37 #
38 # This sets the default machine to be qemux86-64 if no other machine is selected:
39 MACHINE ??= "raspberrypi5"
```

Enable Compute Module 5 SSH Server

local.conf ×

yocto > build-pi5 > conf > local.conf

```
125 # Extra image configuration defaults
126 #
127 # The EXTRA_IMAGE_FEATURES variable allows extra packages to be added to the generated
128 # images. Some of these options are added to certain image types automatically. The
129 # variable can contain the following options:
130 # "dbg-pkgs" - add -dbg packages for all installed packages
131 #             (adds symbol information for debugging/profiling)
132 # "src-pkgs" - add -src packages for all installed packages
133 #             (adds source code for debugging)
134 # "dev-pkgs" - add -dev packages for all installed packages
135 #             (useful if you want to develop against libs in the image)
136 # "ptest-pkgs" - add -ptest packages for all ptest-enabled packages
137 #             (useful if you want to run the package test suites)
138 # "tools-sdk" - add development tools (gcc, make, pkgconfig etc.)
139 # "tools-debug" - add debugging tools (gdb, strace)
140 # "eclipse-debug" - add Eclipse remote debugging support
141 # "tools-profile" - add profiling tools (oprofile, lttng, valgrind)
142 # "tools-testapps" - add useful testing tools (ts_print, aplay, arecord etc.)
143 # "debug-tweaks" - make an image suitable for development
144 #                 e.g. ssh root access has a blank password
145 # There are other application targets that can be used here too, see
146 # meta/classes-recipe/image.bbclass and
147 # meta/classes-recipe/core-image.bbclass for more details.
148 # We default to enabling the debugging tweaks.
149 EXTRA_IMAGE_FEATURES ?= "debug-tweaks"
150 EXTRA_IMAGE_FEATURES:append ?= " ssh-server-openssh "
```

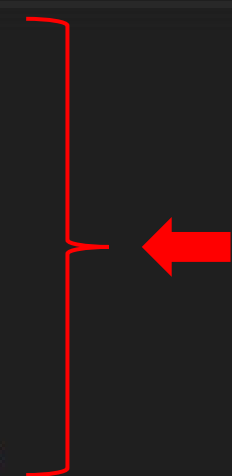


Enable I2C – nano Text Editor – WiFi via wpa_supplicant.conf

local.conf X

yocto > build-pi5 > conf > local.conf

```
285
286 # CONF_VERSION is increased each time build/conf/ changes incompatibly and is used to
287 # track the version of this file when it was generated. This can safely be ignored if
288 # this doesn't mean anything to you.
289 CONF_VERSION = "2"
290
291 # Enable the UART
292 # Enable I2C Support
293 # Enable nano text editor
294 # Enable WiFi configuration via wpa-supplciant.conf
295 # synaptics-killswitch is required
296 ENABLE_UART = "1"
297
298 ENABLE_I2C = "1"
299 KERNEL_MODULE_AUTOLOAD:rpi += " i2c-dev"
300 IMAGE_INSTALL:append = " i2c-tools"
301 IMAGE_INSTALL:append = " nano"
302 IMAGE_INSTALL:append = " wpa-supplciant"
303 LICENSE_FLAGS_ACCEPTED = "synaptics-killswitch"
```

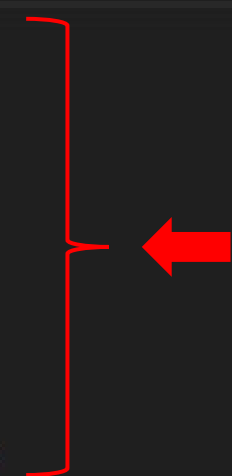
A red bracket on the right side of the terminal window groups the configuration lines from line 296 to 303. A red arrow points from the right towards the center of this bracketed group.

Enable I2C – nano Text Editor – WiFi Via wpa_supplicant.conf

local.conf X

yocto > build-pi5 > conf > local.conf

```
285
286 # CONF_VERSION is increased each time build/conf/ changes incompatibly and is used to
287 # track the version of this file when it was generated. This can safely be ignored if
288 # this doesn't mean anything to you.
289 CONF_VERSION = "2"
290
291 # Enable the UART
292 # Enable I2C Support
293 # Enable nano text editor
294 # Enable WiFi configuration via wpa-supplciant.conf
295 # synaptics-killswitch is required
296 ENABLE_UART = "1"
297
298 ENABLE_I2C = "1"
299 KERNEL_MODULE_AUTOLOAD:rpi += " i2c-dev"
300 IMAGE_INSTALL:append = " i2c-tools"
301 IMAGE_INSTALL:append = " nano"
302 IMAGE_INSTALL:append = " wpa-supplciant"
303 LICENSE_FLAGS_ACCEPTED = "synaptics-killswitch"
```

A red bracket is drawn on the right side of the terminal window, grouping lines 296 through 303. A red arrow points from the right towards the center of the bracket, specifically pointing to the line containing 'i2c-dev' in the kernel module configuration.

Execute BitBake

```
fred@pi5-yocto: ~/pi5yoctoProject/yocto/build-pi5/tmp/deploy/images/raspberrypi5
File Edit View Search Terminal Help
fred@pi5-yocto:~$ cd pi5yoctoProject/yocto
fred@pi5-yocto:~/pi5yoctoProject/yocto$ source poky/oe-init-build-env build-pi5
This is the default build configuration for the Poky reference distribution.

### Shell environment set up for builds. ###

You can now run 'bitbake <target>'

Common targets are:
  core-image-minimal
  core-image-full-cmdline
  core-image-sato
  core-image-weston
  meta-toolchain
  meta-ide-support

You can also run generated qemu images with a command like 'runqemu qemux86-64'.

Other commonly useful commands are:
- 'devtool' and 'recipetool' handle common recipe tasks
- 'bitbake-layers' handles common layer tasks
- 'oe-pkgdata-util' handles common target package tasks
fred@pi5-yocto:~/pi5yoctoProject/yocto/build-pi5$ bitbake core-image-base
Loading cache: 100% |#####| Time: 0:00:01
```

Execute BitBake

```
fred@pi5-yocto: ~/pi5yoctoProject/yocto/build-pi5
File Edit View Search Terminal Help

fred@pi5-yocto:~/pi5yoctoProject/yocto/build-pi5$ bitbake core-image-base
Loading cache: 100% |#####| Time: 0:00:01
Loaded 4634 entries from dependency cache.
NOTE: Resolving any missing task queue dependencies

Build Configuration:
BB_VERSION           = "2.8.0"
BUILD_SYS            = "x86_64-linux"
NATIVELSBSTRING     = "universal"
TARGET_SYS           = "aarch64-poky-linux"
MACHINE              = "raspberrypi5"
DISTRO               = "poky"
DISTRO_VERSION       = "5.0.10"
TUNE_FEATURES        = "aarch64 crypto cortexa76"
TARGET_FPU           = ""
meta
meta-poky
meta-yocto-bsp       = "scarthgap:ac257900c33754957b2696529682029d997a8f28"
meta-oe
meta-python
meta-networking     = "scarthgap:491671faee11ea131feab5a3a451d1a01deb2ab1"
meta-raspberrypi    = "scarthgap:a56d87d4e670c51d3f53490763ff4e6a8312b5d6"

Sstate summary: Wanted 2 Local 0 Mirrors 0 Missed 2 Current 2538 (0% match, 99% complete)##### | ETA: 0:00:00
Removing 2 stale sstate objects for arch raspberrypi5: 100% |#####| Time: 0:00:00
NOTE: Executing Tasks
NOTE: Tasks Summary: Attempted 5250 tasks of which 5239 didn't need to be rerun and all succeeded.
fred@pi5-yocto:~/pi5yoctoProject/yocto/build-pi5$
```

Copy Compute Module 5 Yocto Image to microSD Card

```
fred@pi5-yocto: ~/pi5yoctoProject/yocto/build-pi5/tmp/deploy/images/raspberrypi5
File Edit View Search Terminal Help
fred@pi5-yocto:~/pi5yoctoProject/yocto/build-pi5/tmp/deploy/images/raspberrypi5$ sudo bmaptool copy core-image-base-raspberrypi5.rootfs.wic.bz2 /dev/sdb
bmaptool: info: discovered bmap file 'core-image-base-raspberrypi5.rootfs.wic.bmap'
bmaptool: info: block map format version 2.0
bmaptool: info: 100045 blocks of size 4096 (390.8 MiB), mapped 46799 blocks (182.8 MiB or 46.8%)
bmaptool: info: copying image 'core-image-base-raspberrypi5.rootfs.wic.bz2' to block device '/dev/sdb' using bmap file 'core-image-base-raspberrypi5.rootfs.wic.bmap'
bmaptool: info: 100% copied
bmaptool: info: synchronizing '/dev/sdb'
bmaptool: info: copying time: 6.5s, copying speed 28.1 MiB/sec
fred@pi5-yocto:~/pi5yoctoProject/yocto/build-pi5/tmp/deploy/images/raspberrypi5$
```

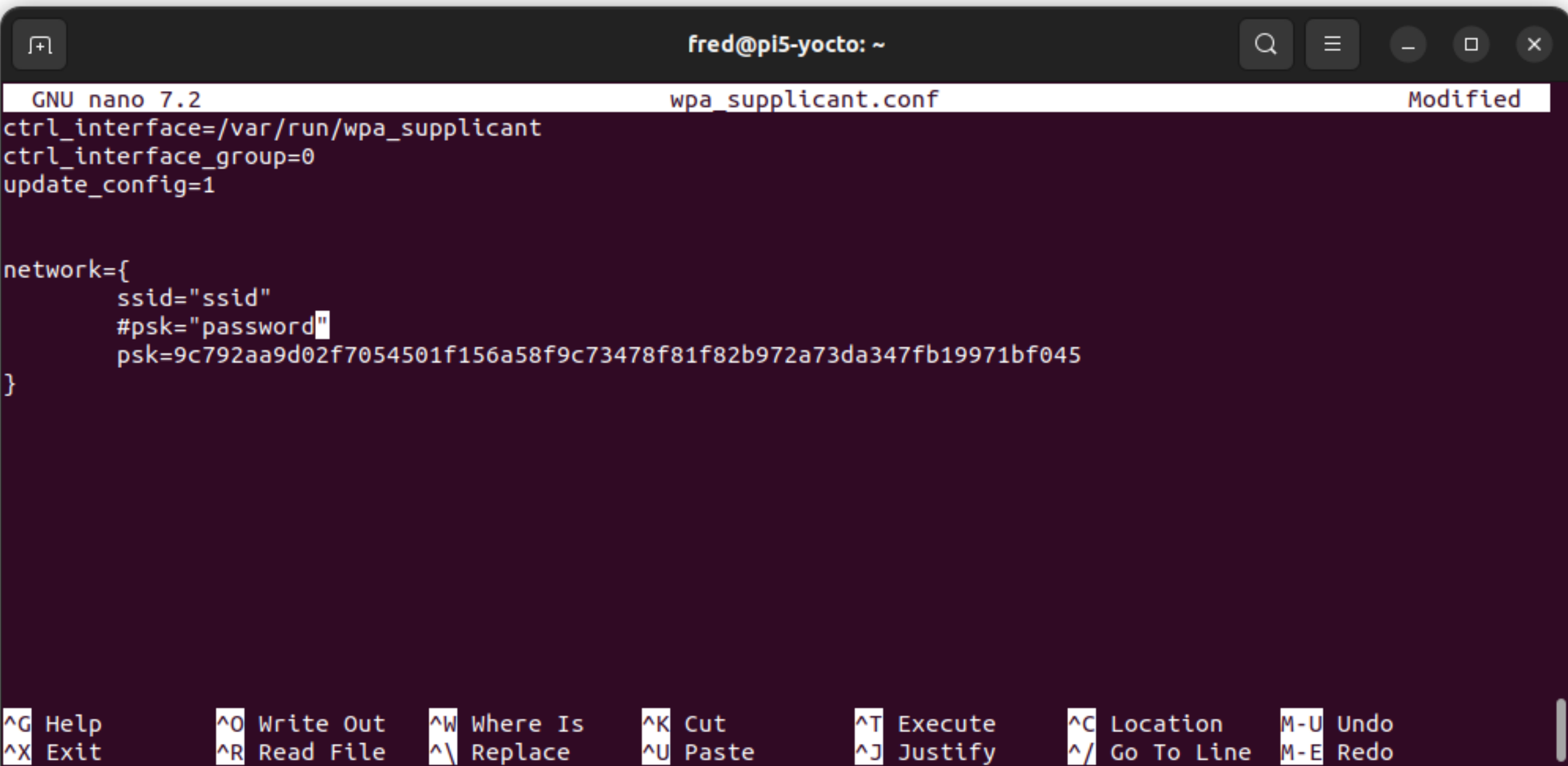
Boot the microSD Card Image and Login

```
fred@pi5-yocto: ~  
* Starting Avahi mDNS/DNS-SD Daemon: avahi-daemon  
[ 28.863018] Bluetooth: BNEP (Ethernet Emulation) ver 1.3  
[ 28.868447] Bluetooth: BNEP filters: protocol multicast  
[ 28.873756] Bluetooth: BNEP socket layer initialized  
[ 28.881705] Bluetooth: MGMT ver 1.22  
...done.  
[ 28.888264] NET: Registered PF_ALG protocol family  
Starting Telephony daemon  
Starting Linux NFC daemon  
[ 28.931679] nfc: nfc_init: NFC Core ver 0.1  
[ 28.935979] NET: Registered PF_NFC protocol family  
[ 28.950870] Bluetooth: RFCOMM TTY layer initialized  
[ 28.955791] Bluetooth: RFCOMM socket layer initialized  
[ 28.960958] Bluetooth: RFCOMM ver 1.11  
  
Poky (Yocto Project Reference Distro) 5.0.10 raspberrypi5 /dev/ttyAMA10  
  
raspberrypi5 login: root  
  
WARNING: Poky is a reference Yocto Project distribution that should be used for  
testing and development purposes only. It is recommended that you create your  
own distribution for production use.  
  
root@raspberrypi5:~#
```

Configure wpa_supplicant.conf

```
fred@pi5-yocto: ~  
lrwxrwxrwx 1 root root 20 Mar 9 12:34 resolv.conf -> /var/run/resolv.conf  
-rw-r--r-- 1 root root 911 Mar 9 12:34 rpc  
-rw-r--r-- 1 root root 61 Mar 9 12:34 rpcbind.conf  
-r----- 1 root root 1863 Mar 9 12:34 securetty  
-rw-r--r-- 1 root root 12813 Mar 9 12:34 services  
-r----- 1 root root 555 Mar 9 12:34 shadow  
-rw-r--r-- 1 root root 42 Mar 9 12:34 shells  
drwxr-xr-x 2 root root 1024 Mar 9 12:34 skel  
drwxr-xr-x 2 root root 1024 Mar 9 12:35 ssh  
drwxr-xr-x 2 root root 1024 Mar 9 12:34 ssl  
-rw-r--r-- 1 root root 0 Mar 9 12:34 subgid  
-rw-r--r-- 1 root root 0 Mar 9 12:34 subuid  
-rw-r--r-- 1 root root 27 Mar 9 12:34 sysctl.conf  
-rw-r--r-- 1 root root 651 Mar 9 12:34 syslog-startup.conf  
-rw-r--r-- 1 root root 69 Mar 9 12:34 syslog.conf  
drwxr-xr-x 9 root root 1024 Mar 9 12:34 terminfo  
-rw-r--r-- 1 root root 15 Mar 9 12:43 timestamp  
drwxr-xr-x 4 root root 1024 Mar 9 12:34 udev  
drwxr-xr-x 2 root root 1024 Mar 9 12:34 udhcpc.d  
-rw-r--r-- 1 root root 15 Mar 9 12:34 version  
-rw-r--r-- 1 root root 5291 Mar 9 12:34 volatile.cache  
-rw----- 1 root root 202 Mar 9 13:05 wpa_supplicant.conf  
-rw-r--r-- 1 root root 681 Mar 9 12:34 xattr.conf  
root@raspberrypi5:/etc# wpa_passphrase "SSID" "PASSWORD" >> /etc/wpa_supplicant.conf
```

Configure wpa_supplicant.conf



A terminal window titled "fred@pi5-yocto: ~" showing the nano editor editing the file "wpa_supplicant.conf". The editor's status bar at the top indicates "GNU nano 7.2" on the left, "wpa_supplicant.conf" in the center, and "Modified" on the right. The configuration text is as follows:

```
ctrl_interface=/var/run/wpa_supplicant
ctrl_interface_group=0
update_config=1

network={
    ssid="ssid"
    #psk="password"
    psk=9c792aa9d02f7054501f156a58f9c73478f81f82b972a73da347fb19971bf045
}
```

At the bottom of the terminal, a help menu is visible with the following options:

| | | | | | | |
|----------------|---------------------|--------------------|-----------------|-------------------|----------------------|-----------------|
| ^G Help | ^O Write Out | ^W Where Is | ^K Cut | ^T Execute | ^C Location | M-U Undo |
| ^X Exit | ^R Read File | ^_ Replace | ^U Paste | ^J Justify | ^/ Go To Line | M-E Redo |

Configure /etc/network/interfaces

```
fred@pi5-yocto: ~  
GNU nano 7.2 interfaces  
# /etc/network/interfaces -- configuration file for ifup(8), ifdown(8)  
  
# The loopback interface  
auto lo  
iface lo inet loopback  
  
# Wireless interfaces  
allow-hotplug wlan0 }  
auto wlan0 } ← Add These Lines  
iface wlan0 inet dhcp  
    wireless_mode managed  
    wireless_essid any  
    wpa-driver wext  
    wpa-conf /etc/wpa_supplicant.conf  
  
iface atml0 inet dhcp  
  
# Wired or wireless interfaces including predictable names  
auto eth0  
iface eth0 inet dhcp
```

[Read 37 lines]

| | | | | | | |
|----------------|---------------------|--------------------|-----------------|-------------------|----------------------|-----------------|
| ^G Help | ^O Write Out | ^W Where Is | ^K Cut | ^T Execute | ^C Location | M-U Undo |
| ^X Exit | ^R Read File | ^_ Replace | ^U Paste | ^J Justify | ^/ Go To Line | M-E Redo |

Reboot and Execute ifconfig Command

```
fred@pi5-yocto: ~  
collisions:0 txqueuelen:1000  
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)  
Interrupt:105  
lo  
Link encap:Local Loopback  
inet addr:127.0.0.1 Mask:255.0.0.0  
inet6 addr: ::1/128 Scope:Host  
UP LOOPBACK RUNNING MTU:65536 Metric:1  
RX packets:10 errors:0 dropped:0 overruns:0 frame:0  
TX packets:10 errors:0 dropped:0 overruns:0 carrier:0  
collisions:0 txqueuelen:1000  
RX bytes:1606 (1.5 KiB) TX bytes:1606 (1.5 KiB)  
wlan0  
Link encap:Ethernet HWaddr 2C:CF:67:C2:E4:A7  
inet addr:192.168.1.61 Bcast:192.168.1.255 Mask:255.255.255.0  
inet6 addr: 2600:6c5a:c7f:f2a6:2ecf:67ff:fec2:e4a7/64 Scope:Global  
inet6 addr: fe80::2ecf:67ff:fec2:e4a7/64 Scope:Link  
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1  
RX packets:74 errors:0 dropped:0 overruns:0 frame:0  
TX packets:39 errors:0 dropped:0 overruns:0 carrier:0  
collisions:0 txqueuelen:1000  
RX bytes:20707 (20.2 KiB) TX bytes:6450 (6.2 KiB)  
root@raspberrypi5:~# ifconfig
```

SSH Into the Compute Module 5 From a Remote Linux System

```
fred@shop-ubuntu-1660: ~  
fred@shop-ubuntu-1660:~$ ssh root@192.168.1.61  
  
WARNING: Poky is a reference Yocto Project distribution that should be used for  
testing and development purposes only. It is recommended that you create your  
own distribution for production use.  
  
root@raspberrypi5:~# cd /etc  
root@raspberrypi5:/etc# ls  
asound.conf          libnl                 resolv.conf  
avahi                limits                rpc  
bindresvport.blacklist  login.access         rpcbind.conf  
bluetooth            login.defs            securetty  
busybox.links.nosuid  logrotate-dmesg.conf services  
busybox.links.suid    mke2fs.conf          shadow  
dbus-1               modprobe.d           shells  
default              modules-load.d       skel  
depmod.d             motd                  ssh  
e2scrub.conf         mtab                  ssl  
ethertypes           netconfig            subgid  
fstab                network              subuid  
group                nsswitch.conf        sysctl.conf  
gshadow              ofono                 syslog-startup.conf  
host.conf            passwd                syslog.conf  
hostname             profile               terminfo
```

FileZilla SSH Access From a Remote Linux System

cm5 - sftp://root@192.168.1.38 - FileZilla Pro

File Edit View Transfer Server Bookmarks Help

Host: Username: Password: Port: Quickconnect

Status: Retrieving directory listing of "/home/root"...

Status: Directory listing of "/home/root" successful

Status: Retrieving directory listing of "/"...

Status: Listing directory /

Status: Directory listing of "/" successful

Status: Disconnected from server

Local site: C:\Users\Public\pi5yocto_article_part2\

- Music
- orcadProjects
- pbp3
- pi5yocto_article
- pi5yocto_article_part2
- pico2

Remote site: /

- bin
- boot
- dev

Filename

- ..
- images

1 directory

Filename

- ..
- bin
- boot
- dev
- etc
- home
- lib

16 directories

| Server/Local file | Direction | Remote file |
|-------------------|-----------|-------------|
|-------------------|-----------|-------------|

Queued files Failed transfers Successful transfers (3)

Queue: empty