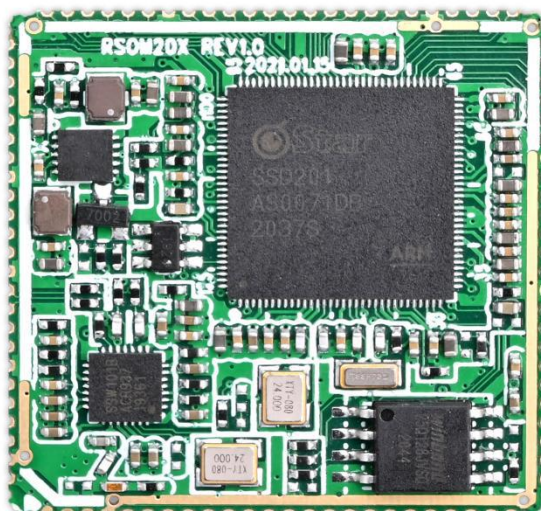


Shenzhen Geniatech Co.,Ltd.

Development Guide

MODEL:SOM-20x



Document information

DESCRIPTION	VERSION	BOARD ID	PAGE	DATE	AUTHOR
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This development environment construction description mainly explains the system, environment-dependent steps, and SDK compilation involved in the SDK development environment of DB20x project.

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I、Development environment construction

1、Install ubuntu system

System ISO download at:

<http://releases.ubuntu.com/xenial/ubuntu-16.04.7-server-amd64.iso>

The development environment is ubuntu-16.04.7-server-amd64. After the system installation is complete, install the appropriate software as follows.

After the system is installed and you have logged in to the system, log in to the root account, enter the following command

`sudo su`

```
admin1@ubuntu:~$ sudo su
[sudo] password for admin1:
root@ubuntu:/home/admin1# cd \
>
root@ubuntu:~#
```

2、Install ssh

For login debugging, installed and ready to use

`sudo apt-get install openssh-server`

```
Selecting previously unselected package python3-requests.
Preparing to unpack .../python3-requests_2.9.1-3ubuntu0.1_all.deb ...
Unpacking python3-requests (2.9.1-3ubuntu0.1) ...
Selecting previously unselected package tcpd.
Preparing to unpack .../tcpd_7.6.q-25_amd64.deb ...
Unpacking tcpd (7.6.q-25) ...
Selecting previously unselected package ssh-import-id.
Preparing to unpack .../ssh-import-id_5.5-0ubuntu1_all.deb ...
Unpacking ssh-import-id (5.5-0ubuntu1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.28) ...
Processing triggers for ufw (0.35-0ubuntu2) ...
Setting up libwrap0:amd64 (7.6.q-25) ...
Setting up ncurses-term (6.0+20160213-1ubuntu1) ...
Setting up openssh-sftp-server (1:7.2p2-4ubuntu2.10) ...
Setting up openssh-server (1:7.2p2-4ubuntu2.10) ...
Creating SSH2 RSA key; this may take some time ...
2048 SHA256:grNFGvg0GuS3YUFQ/4bLYm5pAAy11qBfrAqWdhfkd0s root@ubuntu (RSA)
Creating SSH2 DSA key; this may take some time ...
1024 SHA256:6IkAuM/WhWTJ0rfICPpsJlz0qtwwhJEsJo7ip2d+Nuo root@ubuntu (DSA)
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:jF0YvZx66c2wenMcdb67kpwE49r9HYdLm0QexFpahaI root@ubuntu (ECDSA)
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:wXtk1kEuWGa7d9ou2U6FUSNey9JMSEa8SifKj28qhY root@ubuntu (ED25519)
Setting up python3-pkg-resources (20.7.0-1) ...
Setting up python3-chardet (2.3.0-2) ...
Setting up python3-six (1.10.0-3) ...
Setting up python3-urllib3 (1.13.1-2ubuntu0.16.04.4) ...
Setting up python3-requests (2.9.1-3ubuntu0.1) ...
Setting up tcpd (7.6.q-25) ...
Setting up ssh-import-id (5.5-0ubuntu1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.28) ...
Processing triggers for ufw (0.35-0ubuntu2) ...
root@ubuntu:/# _
```

3、Installation of dependencies

For SDK compilation you need to install some tools, otherwise the compilation will fail.

```
# sudo apt-get install libncurses5-dev
```

```
# sudo apt-get install libncursesw5-dev
```

```

Selecting previously unselected package libtinfo-dev:amd64.
Preparing to unpack .../libtinfo-dev_6.0+20160213-1ubuntu1_amd64.deb ...
Unpacking libtinfo-dev:amd64 (6.0+20160213-1ubuntu1) ...
Selecting previously unselected package libncurses5-dev:amd64.
Preparing to unpack .../libncurses5-dev_6.0+20160213-1ubuntu1_amd64.deb ...
Unpacking libncurses5-dev:amd64 (6.0+20160213-1ubuntu1) ...
Selecting previously unselected package manpages-dev.
Preparing to unpack .../manpages-dev_4.04-2_all.deb ...
Unpacking manpages-dev (4.04-2) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up libc-dev-bin (2.23-0ubuntu11.3) ...
Setting up linux-libc-dev:amd64 (4.4.0-210.242) ...
Setting up libc6-dev:amd64 (2.23-0ubuntu11.3) ...
Setting up libtinfo-dev:amd64 (6.0+20160213-1ubuntu1) ...
Setting up libncurses5-dev:amd64 (6.0+20160213-1ubuntu1) ...
Setting up manpages-dev (4.04-2) ...
root@ubuntu:~# sudo apt-get install libncursesw5-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  ncurses-doc
The following NEW packages will be installed:
  libncursesw5-dev
0 upgraded, 1 newly installed, 0 to remove and 78 not upgraded.
Need to get 198 kB of archives.
After this operation, 1,181 kB of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu xenial/main amd64 libncursesw5-dev amd64 6.0+20160213-1ubu
ntu1 [198 kB]
Fetched 198 kB in 1s (125 kB/s)
Selecting previously unselected package libncursesw5-dev:amd64.
(Reading database ... 70426 files and directories currently installed.)
Preparing to unpack .../libncursesw5-dev_6.0+20160213-1ubuntu1_amd64.deb ...
Unpacking libncursesw5-dev:amd64 (6.0+20160213-1ubuntu1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up libncursesw5-dev:amd64 (6.0+20160213-1ubuntu1) ...
root@ubuntu:~#

```

sudo apt-get install libc6-dev-i386

```

root@ubuntu:~# sudo apt-get install libc6-dev-i386
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  binutils cpp cpp-5 gcc gcc-5 gcc-5-multilib gcc-multilib lib32asan2 lib32atomic1 lib32cilkrt5
  lib32gcc-5-dev lib32gcc1 lib32gomp1 lib32itm1 lib32mpx0 lib32quadmath0 lib32stdc++6 lib32ubsan0
  libasan2 libatomic1 libc6-dev-x32 libc6-i386 libc6-x32 libcc1-0 libcilkrt5 libgcc-5-dev
  libgomp1 libisl15 libitm1 liblsan0 libmpc3 libmpfr4 libmpx0 libquadmath0 libtsan0 libubsan0
  libx32asan2 libx32atomic1 libx32cilkrt5 libx32gcc-5-dev libx32gcc1 libx32gomp1 libx32itm1
  libx32quadmath0 libx32stdc++6 libx32ubsan0
Suggested packages:
  binutils-doc cpp-doc gcc-5-locales make autoconf automake libtool flex bison gdb gcc-doc
  gcc-5-doc libgcc1-dbg libgomp1-dbg libitm1-dbg libatomic1-dbg libasan2-dbg liblsan0-dbg
  libtsan0-dbg libubsan0-dbg libcilkrt5-dbg libmpx0-dbg libquadmath0-dbg
The following NEW packages will be installed:
  binutils cpp cpp-5 gcc gcc-5 gcc-5-multilib gcc-multilib lib32asan2 lib32atomic1 lib32cilkrt5
  lib32gcc-5-dev lib32gcc1 lib32gomp1 lib32itm1 lib32mpx0 lib32quadmath0 lib32stdc++6 lib32ubsan0
  libasan2 libatomic1 libc6-dev-i386 libc6-dev-x32 libc6-i386 libc6-x32 libcc1-0 libcilkrt5
  libgcc-5-dev libgomp1 libisl15 libitm1 liblsan0 libmpc3 libmpfr4 libmpx0 libquadmath0 libtsan0
  libubsan0 libx32asan2 libx32atomic1 libx32cilkrt5 libx32gcc-5-dev libx32gcc1 libx32gomp1
  libx32itm1 libx32quadmath0 libx32stdc++6 libx32ubsan0
0 upgraded, 47 newly installed, 0 to remove and 78 not upgraded.
Need to get 36.6 MB of archives.
After this operation, 137 MB of additional disk space will be used.
Do you want to continue? [Y/n] y

```



```
Setting up libx32asan2 (5.4.0-6ubuntu1~16.04.12) ...
Setting up lib32stdc++6 (5.4.0-6ubuntu1~16.04.12) ...
Setting up lib32ubsan0 (5.4.0-6ubuntu1~16.04.12) ...
Setting up libx32stdc++6 (5.4.0-6ubuntu1~16.04.12) ...
Setting up libx32ubsan0 (5.4.0-6ubuntu1~16.04.12) ...
Setting up lib32cilkrt5 (5.4.0-6ubuntu1~16.04.12) ...
Setting up libx32cilkrt5 (5.4.0-6ubuntu1~16.04.12) ...
Setting up lib32mpx0 (5.4.0-6ubuntu1~16.04.12) ...
Setting up lib32quadmath0 (5.4.0-6ubuntu1~16.04.12) ...
Setting up libx32quadmath0 (5.4.0-6ubuntu1~16.04.12) ...
Setting up lib32gcc-5-dev (5.4.0-6ubuntu1~16.04.12) ...
Setting up libx32gcc-5-dev (5.4.0-6ubuntu1~16.04.12) ...
Setting up gcc-5-multilib (5.4.0-6ubuntu1~16.04.12) ...
Setting up gcc-multilib (4:5.3.1-1ubuntu1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
root@ubuntu:/#
```

sudo apt-get install lib32z1 lib32ncurses5

```
root@ubuntu:/# sudo apt-get install lib32z1 lib32ncurses5
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  lib32tinfo5
The following NEW packages will be installed:
  lib32ncurses5 lib32tinfo5 lib32z1
0 upgraded, 3 newly installed, 0 to remove and 78 not upgraded.
Need to get 229 kB of archives.
After this operation, 904 kB of additional disk space will be used.
Do you want to continue? [Y/n]

Fetched 229 kB in 2s (111 kB/s)
Selecting previously unselected package lib32tinfo5.
(Reading database ... 74842 files and directories currently installed.)
Preparing to unpack .../lib32tinfo5_6.0+20160213-1ubuntu1_amd64.deb ...
Unpacking lib32tinfo5 (6.0+20160213-1ubuntu1) ...
Selecting previously unselected package lib32ncurses5.
Preparing to unpack .../lib32ncurses5_6.0+20160213-1ubuntu1_amd64.deb ...
Unpacking lib32ncurses5 (6.0+20160213-1ubuntu1) ...
Selecting previously unselected package lib32z1.
Preparing to unpack .../lib32z1_1:1.2.8.dfsg-2ubuntu4.3_amd64.deb ...
Unpacking lib32z1 (1:1.2.8.dfsg-2ubuntu4.3) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Setting up lib32tinfo5 (6.0+20160213-1ubuntu1) ...
Setting up lib32ncurses5 (6.0+20160213-1ubuntu1) ...
Setting up lib32z1 (1:1.2.8.dfsg-2ubuntu4.3) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
root@ubuntu:/#
```

sudo apt-get install libuuid1:i386

```
root@ubuntu:/# sudo apt-get install libuuid1:i386
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  gcc-6-base:i386 libc6:i386 libgcc1:i386
Suggested packages:
  glibc-doc:i386 locales:i386
The following NEW packages will be installed:
  gcc-6-base:i386 libc6:i386 libgcc1:i386 libuuid1:i386
0 upgraded, 4 newly installed, 0 to remove and 78 not upgraded.
Need to get 2,349 kB of archives.
After this operation, 10.1 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

```
Preconfiguring packages ...
Selecting previously unselected package gcc-6-base:i386.
(Reading database ... 74864 files and directories currently installed.)
Preparing to unpack .../gcc-6-base_6.0.1-0ubuntu1_i386.deb ...
Unpacking gcc-6-base:i386 (6.0.1-0ubuntu1) ...
Selecting previously unselected package libgcc1:i386.
Preparing to unpack .../libgcc1_1%3a6.0.1-0ubuntu1_i386.deb ...
Unpacking libgcc1:i386 (1:6.0.1-0ubuntu1) ...
Selecting previously unselected package libc6:i386.
Preparing to unpack .../libc6_2.23-0ubuntu11.3_i386.deb ...
Unpacking libc6:i386 (2.23-0ubuntu11.3) ...
Replacing files in old package libc6-i386 (2.23-0ubuntu11.3) ...
Selecting previously unselected package libuuid1:i386.
Preparing to unpack .../libuuid1_2.27.1-6ubuntu3.10_i386.deb ...
Unpacking libuuid1:i386 (2.27.1-6ubuntu3.10) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Setting up gcc-6-base:i386 (6.0.1-0ubuntu1) ...
Setting up libgcc1:i386 (1:6.0.1-0ubuntu1) ...
Setting up libc6:i386 (2.23-0ubuntu11.3) ...
Setting up libuuid1:i386 (2.27.1-6ubuntu3.10) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
root@ubuntu:/#
```

sudo apt-get install cmake

```
root@ubuntu:/# sudo apt-get install cmake
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  cmake-data libarchive13 libcurl3 libjsoncpp1 liblz02-2 make
Suggested packages:
  codeblocks eclipse ninja-build lrzip make-doc
The following NEW packages will be installed:
  cmake cmake-data libarchive13 libcurl3 libjsoncpp1 liblz02-2 make
0 upgraded, 7 newly installed, 0 to remove and 78 not upgraded.
Need to get 4,469 kB of archives.
After this operation, 22.3 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```



```

Selecting previously unselected package cmake.
Preparing to unpack .../cmake_3.5.1-1ubuntu3_amd64.deb ...
Unpacking cmake (3.5.1-1ubuntu3) ...
Selecting previously unselected package make.
Preparing to unpack .../archives/make_4.1-6_amd64.deb ...
Unpacking make (4.1-6) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Setting up cmake-data (3.5.1-1ubuntu3) ...
Setting up liblz2-2:amd64 (2.08-1.2) ...
Setting up libarchive13:amd64 (3.1.2-11ubuntu0.16.04.8) ...
Setting up libcurl3:amd64 (7.47.0-1ubuntu2.19) ...
Setting up libjsoncpp1:amd64 (1.7.2-1) ...
Setting up cmake (3.5.1-1ubuntu3) ...
Setting up make (4.1-6) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
root@ubuntu:/#

```

sudo apt-get install bc

```

root@ubuntu:/# sudo apt-get install bc
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  bc
0 upgraded, 1 newly installed, 0 to remove and 78 not upgraded.
Need to get 82.6 kB of archives.
After this operation, 246 kB of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu xenial/main amd64 bc amd64 1.06.95-9build1 [82.6 kB]
Fetched 82.6 kB in 1s (70.1 kB/s)
Selecting previously unselected package bc.
(Reading database ... 77270 files and directories currently installed.)
Preparing to unpack .../bc_1.06.95-9build1_amd64.deb ...
Unpacking bc (1.06.95-9build1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for install-info (6.1.0.dfsg.1-5) ...
Setting up bc (1.06.95-9build1) ...
root@ubuntu:/#

```

sudo apt-get install xz-utils

```

root@ubuntu:/# sudo apt-get install xz-utils
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  xz-utils
0 upgraded, 1 newly installed, 0 to remove and 78 not upgraded.
Need to get 78.8 kB of archives.
After this operation, 393 kB of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu xenial/main amd64 xz-utils amd64 5.1.1alpha+20120614-2ubuntu2 [78.8 kB]
Fetched 78.8 kB in 1s (68.0 kB/s)
Selecting previously unselected package xz-utils.
(Reading database ... 77287 files and directories currently installed.)
Preparing to unpack .../xz-utils_5.1.1alpha+20120614-2ubuntu2_amd64.deb ...
Unpacking xz-utils (5.1.1alpha+20120614-2ubuntu2) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up xz-utils (5.1.1alpha+20120614-2ubuntu2) ...
update-alternatives: using /usr/bin/xz to provide /usr/bin/lzma (lzma) in auto mode
root@ubuntu:/# _

```

sudo apt-get install automake

```
root@ubuntu:/# sudo apt-get install automake
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  autoconf autotools-dev libperl5.22 libsigsegv2 m4 perl perl-base perl-modules-5.22 rename
Suggested packages:
  autoconf-archive gnu-standards autoconf-doc libtool gettext perl-doc libterm-readline-gnu-perl
  | libterm-readline-perl-perl
The following NEW packages will be installed:
  autoconf automake autotools-dev libperl5.22 libsigsegv2 m4 perl perl-modules-5.22 rename
The following packages will be upgraded:
  perl-base
1 upgraded, 9 newly installed, 0 to remove and 77 not upgraded.
Need to get 8,609 kB of archives.
After this operation, 43.3 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

```
Preparing to unpack .../automake_1:3a1.15-4ubuntu1_all.deb ...
Unpacking automake (1:1.15-4ubuntu1) ...
Selecting previously unselected package rename.
Preparing to unpack .../archives/rename_0.20-4_all.deb ...
Unpacking rename (0.20-4) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for install-info (6.1.0.dfsg.1-5) ...
Setting up libsigsegv2:amd64 (2.10-4) ...
Setting up perl-modules-5.22 (5.22.1-9ubuntu0.9) ...
Setting up libperl5.22:amd64 (5.22.1-9ubuntu0.9) ...
Setting up perl (5.22.1-9ubuntu0.9) ...
update-alternatives: using /usr/bin/prename to provide /usr/bin/rename (rename) in auto mode
Setting up m4 (1.4.17-5) ...
Setting up autoconf (2.69-9) ...
Setting up autotools-dev (20150820.1) ...
Setting up automake (1:1.15-4ubuntu1) ...
update-alternatives: using /usr/bin/automake-1.15 to provide /usr/bin/automake (automake) in auto mode
Setting up rename (0.20-4) ...
update-alternatives: using /usr/bin/file-rename to provide /usr/bin/rename (rename) in auto mode
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
root@ubuntu:/# _
```

sudo apt-get install libtool

```
root@ubuntu:/# sudo apt-get install libtool
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libltdl-dev libltdl7
Suggested packages:
  libtool-doc gfortran | fortran95-compiler gcj-jdk
The following NEW packages will be installed:
  libltdl-dev libltdl7 libtool
0 upgraded, 3 newly installed, 0 to remove and 77 not upgraded.
Need to get 393 kB of archives.
After this operation, 1,942 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu xenial/main amd64 libltdl7 amd64 2.4.6-0.1 [38.3 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu xenial/main amd64 libltdl-dev amd64 2.4.6-0.1 [162 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu xenial/main amd64 libtool all 2.4.6-0.1 [193 kB]
Fetched 393 kB in 2s (150 kB/s)
Selecting previously unselected package libltdl7:amd64.
(Reading database ... 79389 files and directories currently installed.)
Preparing to unpack .../libltdl7_2.4.6-0.1_amd64.deb ...
Unpacking libltdl7:amd64 (2.4.6-0.1) ...
Selecting previously unselected package libltdl-dev:amd64.
Preparing to unpack .../libltdl-dev_2.4.6-0.1_amd64.deb ...
Unpacking libltdl-dev:amd64 (2.4.6-0.1) ...
Selecting previously unselected package libtool.
Preparing to unpack .../libtool_2.4.6-0.1_all.deb ...
Unpacking libtool (2.4.6-0.1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up libltdl7:amd64 (2.4.6-0.1) ...
Setting up libltdl-dev:amd64 (2.4.6-0.1) ...
Setting up libtool (2.4.6-0.1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
root@ubuntu:/#
```

sudo apt-get install libevdev-dev

```
root@ubuntu:/# sudo apt-get install libevdev-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  javascript-common libevdev2 libjs-jquery
Suggested packages:
  apache2 | lighttpd | httpd
The following NEW packages will be installed:
  javascript-common libevdev-dev libevdev2 libjs-jquery
0 upgraded, 4 newly installed, 0 to remove and 77 not upgraded.
Need to get 300 kB of archives.
After this operation, 1,940 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
```



```

Selecting previously unselected package javascript-common.
(Reading database ... 79470 files and directories currently installed.)
Preparing to unpack .../javascript-common_11_all.deb ...
Unpacking javascript-common (11) ...
Selecting previously unselected package libjs-jquery.
Preparing to unpack .../libjs-jquery_1.11.3+dfsg-4_all.deb ...
Unpacking libjs-jquery (1.11.3+dfsg-4) ...
Selecting previously unselected package libevdev2:amd64.
Preparing to unpack .../libevdev2_1.4.6+dfsg-1_amd64.deb ...
Unpacking libevdev2:amd64 (1.4.6+dfsg-1) ...
Selecting previously unselected package libevdev-dev.
Preparing to unpack .../libevdev-dev_1.4.6+dfsg-1_amd64.deb ...
Unpacking libevdev-dev (1.4.6+dfsg-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Setting up javascript-common (11) ...
Setting up libjs-jquery (1.11.3+dfsg-4) ...
Setting up libevdev2:amd64 (1.4.6+dfsg-1) ...
Setting up libevdev-dev (1.4.6+dfsg-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
root@ubuntu:/#

```

sudo apt-get install pkg-config

```

root@ubuntu:/# sudo apt-get install pkg-config
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  build-essential dpkg-dev fakeroot g++ g++-5 libalgorithm-diff-perl libalgorithm-diff-xs-perl
  libalgorithm-merge-perl libdpkg-perl libfakeroot libfile-fcntllock-perl libstdc++-5-dev patch
Suggested packages:
  debian-keyring g++-multilib g++-5-multilib gcc-5-doc libstdc++6-5-dbg libstdc++-5-doc
  diffutils-doc
The following NEW packages will be installed:
  build-essential dpkg-dev fakeroot g++ g++-5 libalgorithm-diff-perl libalgorithm-diff-xs-perl
  libalgorithm-merge-perl libdpkg-perl libfakeroot libfile-fcntllock-perl libstdc++-5-dev patch
  pkg-config
0 upgraded, 14 newly installed, 0 to remove and 77 not upgraded.
Need to get 11.0 MB of archives.
After this operation, 43.8 MB of additional disk space will be used.
Do you want to continue? [Y/n] y_

```



```

Unpacking libalgorithm-diff-perl (1.19.03-1) ...
Selecting previously unselected package libalgorithm-diff-xs-perl.
Preparing to unpack .../libalgorithm-diff-xs-perl_0.04-4build1_amd64.deb ...
Unpacking libalgorithm-diff-xs-perl (0.04-4build1) ...
Selecting previously unselected package libalgorithm-merge-perl.
Preparing to unpack .../libalgorithm-merge-perl_0.08-3_all.deb ...
Unpacking libalgorithm-merge-perl (0.08-3) ...
Selecting previously unselected package libfile-fcntllock-perl.
Preparing to unpack .../libfile-fcntllock-perl_0.22-3_amd64.deb ...
Unpacking libfile-fcntllock-perl (0.22-3) ...
Selecting previously unselected package pkg-config.
Preparing to unpack .../pkg-config_0.29.1-0ubuntu1_amd64.deb ...
Unpacking pkg-config (0.29.1-0ubuntu1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up libstdc++-5-dev:amd64 (5.4.0-6ubuntu1~16.04.12) ...
Setting up g++-5 (5.4.0-6ubuntu1~16.04.12) ...
Setting up g++ (4:5.3.1-1ubuntu1) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up libdpkg-perl (1.18.4ubuntu1.7) ...
Setting up patch (2.7.5-1ubuntu0.16.04.2) ...
Setting up dpkg-dev (1.18.4ubuntu1.7) ...
Setting up build-essential (12.1ubuntu2) ...
Setting up libfakeroot:amd64 (1.20.2-1ubuntu1) ...
Setting up fakeroot (1.20.2-1ubuntu1) ...
update-alternatives: using /usr/bin/fakeroot-sysv to provide /usr/bin/fakeroot (fakeroot) in auto mode
Setting up libalgorithm-diff-perl (1.19.03-1) ...
Setting up libalgorithm-diff-xs-perl (0.04-4build1) ...
Setting up libalgorithm-merge-perl (0.08-3) ...
Setting up libfile-fcntllock-perl (0.22-3) ...
Setting up pkg-config (0.29.1-0ubuntu1) ...
root@ubuntu:/# _

```

These tools && libs need to be installed as above, because they will be used in the compilation process. You can

try to check the errors by not installing the compiler first, and for convenience, just install them at once before compiling.

If the default sh is not bash, you need to change it to bash:

```
# sudo rm /bin/sh
```

```
# sudo ln -s /bin/bash /bin/sh
```

```

root@ubuntu:/# sudo rm /bin/sh
root@ubuntu:/# sudo ln -s /bin/bash /bin/sh
root@ubuntu:/# _

```

4、Install the cross-compilation toolchain toolchain

4.1 Go to the opt folder of the system

```

root@ubuntu:/# ls
bin  etc      initrd.img.old  lib64      media  proc /sbin  tmp  vmlinuz
boot home    lib             libx32     mnt    root  /srv  usr  vmlinuz.old
dev  initrd.img lib32           lost+found opt      run   /sys  var
root@ubuntu:/# cd /opt
root@ubuntu:/opt# _

```

4.2 Loading U disk

```

root@ubuntu:/# cd mnt
root@ubuntu:/mnt# mkdir zdd
root@ubuntu:/mnt# ls
zdd
root@ubuntu:/mnt# cd ..
root@ubuntu:/# mount /dev/sdb1 /mnt/zdd
The disk contains an unclean file system (0, 0).
The file system wasn't safely closed on Windows. Fixing.
root@ubuntu:/# cd /mnt/zdd/
root@ubuntu:/mnt/zdd# ls
1.pdf
2.pdf
3.pdf
4.pdf
adb_interface_usb_driver
adb * * * * *
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi.tar.gz
QPST.WIN.2.7_Installer-00447.3
Qualcomm_Flash_Image_Loader_v2.0.3.5
SDM-SoM20x-Development_test_instructions_V1.0_CN.docx
System_Volume_Information
ubuntu-16.04.7-server-amd64.iso
web.txt
root@ubuntu:/mnt/zdd#

```

4.3 Copy gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi.tar.gz to the /opt/ directory

cp gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi.tar.gz /opt/

```

root@ubuntu:/opt# ls
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi.tar.gz
root@ubuntu:/opt# _

```

4.4 To unzip toolchain, go to the opt folder and enter the following unzip command:

tar -zxvf gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi.tar.gz

```

gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/share/gdb/python/gdb/FrameIterator.py
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/share/gdb/python/gdb/unwinder.py
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/share/gdb/python/gdb/printing.py
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/share/gdb/python/gdb/FrameDecorator.py
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/cc1
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/liblto_plugin.so.0
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/liblto_plugin.so
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/install-tools/
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/install-tools/nkheaders
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/install-tools/fixinc.sh
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/install-tools/fixincl
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/install-tools/nkinstalldirs
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/liblto_plugin.so
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/plugin/
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/plugin/gengtype
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/cc1plus
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/liblto_plugin.so.0.0.0
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/lto1
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/lto-wrapper
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/f951
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/libexec/gcc/arm-linux-gnueabi/8.2.1/collect2
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/include/
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/include/gdb/
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/include/gdb/jit-reader.h
root@ubuntu:/opt# _

```

4.5 Set toolchain to the environment variable to save you from having to manually export every time; add `export PATH=/opt/gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/f/bin:$PATH` to `bashrc` file.

Input

`# vi ~/.bashrc`

Add the following environment variable information to the `bashrc` file

`export PATH=/opt/gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/f/bin:$PATH`

```
# enable color support of ls and also add handy aliases
if [ -x /usr/bin/dircolors ]; then
    test -r ~/.dircolors && eval "$(dircolors -b ~/.dircolors)" || eval "$(dircolors -b)"
    alias ls='ls --color=auto'
    #alias dir='dir --color=auto'
    #alias vdir='vdir --color=auto'

    alias grep='grep --color=auto'
    alias fgrep='fgrep --color=auto'
    alias egrep='egrep --color=auto'
fi

# some more ls aliases
alias ll='ls -alf'
alias la='ls -A'
alias l='ls -CF'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
#if [ -f /etc/bash_completion ] && ! shopt -oq posix; then
#    . /etc/bash_completion
#fi
export PATH=/opt/gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/f/bin:$PATH
```

4.6 After adding, save and exit, use the following command to make the settings take effect

`# source ~/.bashrc`

`# which arm-linux-gnueabi-f-gcc`

```
root@ubuntu:/# source ~/.bashrc
root@ubuntu:/# which arm-linux-gnueabi-f-gcc
/opt/gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/f/bin/arm-linux-gnueabi-f-gcc
root@ubuntu:/#
```

4.7 At this point, the installation of the cross-compilation toolchain is complete, and you can see the version information of the compilation toolchain to indicate successful installation.

Note: The compilation toolchain `gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/f` is provided for compiling the glibc

version of Glibc:2.28

`# arm-linux-gnueabi-f-gcc -v`


```
root@ubuntu:/opt# arm-linux-gnueabi-gcc -v
Using built-in specs.
COLLECT_GCC=arm-linux-gnueabi-gcc
COLLECT_LTO_WRAPPER=/opt/gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi/bin/./libexec/gcc/arm-linux-gnueabi/8.2.1/lto-wrapper
Target: arm-linux-gnueabi
Configured with: /tmp/dgboter/bbs/bc-b1-2-11-rhe6x86_64/buildbot/rhe6x86_64--arm-linux-gnueabi/build/src/gcc/configure --target=arm-linux-gnueabi --prefix= --with-sysroot=/arm-linux-gnueabi/libc --with-build-sysroot=/tmp/dgboter/bbs/bc-b1-2-11-rhe6x86_64/buildbot/rhe6x86_64--arm-linux-gnueabi/build/build-arm-linux-gnueabi/install/arm-linux-gnueabi/libc --enable-gnu-indirect-function --enable-shared --disable-libssp --disable-libmudflap --disable-lsanitizer --enable-checking=release --enable-languages=c,c++,fortran --with-gmp=/tmp/dgboter/bbs/bc-b1-2-11-rhe6x86_64/buildbot/rhe6x86_64--arm-linux-gnueabi/build/build-arm-linux-gnueabi/host-tools --with-mpfr=/tmp/dgboter/bbs/bc-b1-2-11-rhe6x86_64/buildbot/rhe6x86_64--arm-linux-gnueabi/build/build-arm-linux-gnueabi/host-tools --with-mpc=/tmp/dgboter/bbs/bc-b1-2-11-rhe6x86_64/buildbot/rhe6x86_64--arm-linux-gnueabi/build/build-arm-linux-gnueabi/host-tools --with-isl=/tmp/dgboter/bbs/bc-b1-2-11-rhe6x86_64/buildbot/rhe6x86_64--arm-linux-gnueabi/build/build-arm-linux-gnueabi/host-tools --with-arch=armv7-a --with-fpu=neon --with-float=hard --with-arch=armv7-a --with-pkgversion='GNU Toolchain for the A-profile Architecture 8.2-2018-08 (arm-rel-8.23)'
```

```
Thread model: posix
gcc version 8.2.1 20180802 (GNU Toolchain for the A-profile Architecture 8.2-2018-08 (arm-rel-8.23))
```

```
root@ubuntu:/opt#
```

II、Compile the SDK

1、Download SDK file

Please contact the salesperson for the download link.

2、Copy SDK file

Copy the SDK files to ubuntu, for example to the OPT folder (this step is omitted if downloaded directly to ubuntu).

```
# cp ssd20x-202303071644.tar /opt/
```

This is the image showing after the copy;

```
root@ubuntu:/opt# ls
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi  ssd20x
gcc-arm-8.2-2018.08-x86_64-arm-linux-gnueabi.tar.gz  ssd20x-202303071644.tar
```

3、Unzip the SDK file

```
# tar -zxvf ssd20x-202303071644.tar
```



```
ssd20x/kernel/sound/soc/codecs/cs53130.h
ssd20x/kernel/sound/soc/codecs/rt5645.h
ssd20x/kernel/sound/soc/codecs/max98925.h
ssd20x/kernel/sound/soc/codecs/rt5651.c
ssd20x/kernel/sound/soc/codecs/da7219-aad.h
ssd20x/kernel/sound/soc/codecs/nau8810.c
ssd20x/kernel/sound/soc/codecs/rt5677-spi.h
ssd20x/kernel/sound/soc/codecs/ads117x.c
ssd20x/kernel/sound/soc/codecs/rt5663.h
ssd20x/kernel/sound/soc/codecs/wm_hubs.c
ssd20x/kernel/sound/soc/codecs/tlv320aic32x4-i2c.c
ssd20x/kernel/sound/soc/codecs/adau1701.h
ssd20x/kernel/sound/soc/codecs/wm8960.h
ssd20x/kernel/sound/soc/codecs/tfa9879.c
ssd20x/kernel/sound/soc/codecs/wm8711.c
ssd20x/kernel/sound/soc/codecs/da7219-aad.c
ssd20x/kernel/sound/soc/codecs/wm8903.c
ssd20x/kernel/sound/soc/codecs/ab8500-codec.h
ssd20x/kernel/sound/soc/codecs/tas2552.c
ssd20x/kernel/sound/soc/codecs/max98357a.c
ssd20x/kernel/sound/soc/codecs/cs35133.c
ssd20x/kernel/sound/soc/codecs/sta32x.c
ssd20x/kernel/sound/soc/codecs/wm5110.h
ssd20x/kernel/sound/soc/codecs/pcm3168a-i2c.c
ssd20x/kernel/sound/soc/codecs/cs4265.c
ssd20x/kernel/sound/soc/codecs/max98504.c
ssd20x/kernel/sound/soc/codecs/wm8960.c
ssd20x/kernel/sound/soc/codecs/wm8958-dsp2.c
ssd20x/kernel/sound/soc/codecs/arizona.h
ssd20x/kernel/sound/soc/codecs/ad193x.h
ssd20x/kernel/sound/soc/codecs/pcm3008.c
ssd20x/kernel/sound/soc/codecs/inno_rk3036.c
ssd20x/kernel/sound/soc/codecs/wm8985.c
ssd20x/kernel/sound/soc/codecs/tas5086.c
ssd20x/kernel/sound/soc/codecs/spdif_transmitter.c
ssd20x/kernel/sound/soc/codecs/rt5645.c
```

4、SDK directory structure

```
lrwxrwxr-x 22 1014 1014 4096 Mar 7 00:35 boot
lrwxrwxr-x 15 1014 1014 4096 Mar 7 00:35 buildroot
lrwxrwxrwx 1 1014 1014 27 Mar 7 00:35 build.sh -> loong/common/build/build.sh
-rwxrwxr-x 1 1014 1014 251 Mar 6 23:59 init.sh
lrwxrwxr-x 26 1014 1014 4096 Mar 7 00:35 kernel
lrwxrwxr-x 5 1014 1014 4096 Mar 7 00:35 loong
lrwxrwxrwx 1 1014 1014 27 Mar 7 00:35 lunch.sh -> loong/common/build/lunch.sh
lrwxrwxr-x 5 1014 1014 4096 Mar 7 00:35 ota
lrwxrwxr-x 10 1014 1014 4096 Mar 7 00:35 project
lrwxrwxr-x 4 1014 1014 4096 Mar 7 00:35 sdk
lrwxrwxr-x 25 1014 1014 4096 Mar 7 00:35 uil
lrwxrwxr-x 8 1014 1014 4096 Mar 7 00:35 uidSSDPlayer
```

boot-----uboot source code

Buildroot-----Buildroot source code for mass production use of uboot.

kernel-----Kernel source code, version: 4.9.84

Loong-----MIPI screen, LVDS screen, RGB screen driver source code

Ota-----OTA Upgrade source code

project----- project source code, compile the part of the production image, including the non-open source part of the lib/ko, and external api header file reference

SDK-----SDK source code;Test Demo/application packaging framework part

UI-----UI source code

UuidSSDPlayer-----Player source code

Go to the SDK directory(example is ssd20x) and run sh,Select the project profile.

[source lunch.sh](#)

```
root@ubuntu:/opt/ssd20x#  
root@ubuntu:/opt/ssd20x#  
root@ubuntu:/opt/ssd20x#  
root@ubuntu:/opt/ssd20x# source lunch.sh  
support project information  
--> 1) for ssd202      ssd202-lvds display  
--> 2) for ssd202      ssd202-mipi display  
--> 3) for ssd202      ssd202-rgb display  
_
```

Select --> 1) for ssd202 ssd202-lvds display

[1](#)

```
root@ubuntu:/opt/ssd20x#  
root@ubuntu:/opt/ssd20x#  
root@ubuntu:/opt/ssd20x# source lunch.sh  
support project information  
--> 1) for ssd202      ssd202-lvds display  
--> 2) for ssd202      ssd202-mipi display  
--> 3) for ssd202      ssd202-rgb display  
select 1 for ssd202-lvds display  
root@ubuntu:/opt/ssd20x# _
```

5、Compile uboot

5.1 Go to the boot directory and run sh,start compiling uboot

[./make_boot.sh](#)

```

root@ubuntu:/opt/ssd20x/boot# ./make_boot.sh
HOSTCC scripts/basic/fixdep
HOSTCC scripts/kconfig/conf.o
HOSTCC scripts/kconfig/zconf.tab.o
HOSTLD scripts/kconfig/conf
arch/./configs/.tmp_defconfig:326:warning: override: reassigning to symbol CMD_FASTBOOT
#
# configuration written to .config
#
CLEAN examples/standalone
CLEAN tools
CLEAN tools/lib tools/common
CLEAN u-boot.lds u-boot.map u-boot.srec u-boot
HOSTCC scripts/basic/fixdep
HOSTCC scripts/kconfig/conf.o
HOSTCC scripts/kconfig/zconf.tab.o
HOSTLD scripts/kconfig/conf
scripts/kconfig/conf --silentoldconfig Kconfig
CHK include/config.h
GEN include/autoconf.mk
GEN include/autoconf.mk.dep
GCC version: 8.2.1
MUXU
chip_id I2M
/bin/sh: git: command not found
/bin/sh: python: command not found
Makefile:1151: recipe for target 'include/config/uboot.release' failed
make: *** [include/config/uboot.release] Error 127
root@ubuntu:/opt/ssd20x/boot# _

```

5.2 If you get the above error message, please proceed as follows:

rm -rf .git

git init

```

root@ubuntu:/opt/ssd20x/boot# rm -rf .git
root@ubuntu:/opt/ssd20x/boot# git init
The program 'git' is currently not installed. You can install it by typing:
apt install git
root@ubuntu:/opt/ssd20x/boot#

```

5.3 Follow the prompts to install git

apt-get install git

```
root@ubuntu:/opt/ssd20x/boot# apt-get install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  git-man liberror-perl
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-el git-email git-gui gitk gitweb git-arch
  git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
  git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 77 not upgraded.
Need to get 3,939 kB of archives.
After this operation, 25.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu xenial/main amd64 liberror-perl all 0.17-1.2 [19.6 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu xenial-updates/main amd64 git-man all 1:2.7.4-0ubuntu1.10 [737 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu xenial-updates/main amd64 git amd64 1:2.7.4-0ubuntu1.10 [3,183 kB]
Fetched 3,939 kB in 16s (239 kB/s)
Selecting previously unselected package liberror-perl.
(Reading database ... 80883 files and directories currently installed.)
Preparing to unpack .../liberror-perl_0.17-1.2_all.deb ...
Unpacking liberror-perl (0.17-1.2) ...
Selecting previously unselected package git-man.
Preparing to unpack .../git-man_1:2.7.4-0ubuntu1.10_all.deb ...
Unpacking git-man (1:2.7.4-0ubuntu1.10) ...
Selecting previously unselected package git.
Preparing to unpack .../git_1:2.7.4-0ubuntu1.10_amd64.deb ...
Unpacking git (1:2.7.4-0ubuntu1.10) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up liberror-perl (0.17-1.2) ...
Setting up git-man (1:2.7.4-0ubuntu1.10) ...
Setting up git (1:2.7.4-0ubuntu1.10) ...
root@ubuntu:/opt/ssd20x/boot#
```

5.4 Modify the python configuration file

```
# ln -s /usr/bin/python2 /usr/bin/python
```

```
root@ubuntu:/opt/ssd20x/boot# ln -s /usr/bin/python2 /usr/bin/python
```

5.5 Install python2

```
# apt-get install python
```

```
root@ubuntu:/opt/ssd20x/boot# apt-get install python
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libpython-stdlib libpython2.7-minimal libpython2.7-stdlib python-minimal python2.7
  python2.7-minimal
Suggested packages:
  python-doc python-tk python2.7-doc binfmt-support
The following NEW packages will be installed:
  libpython-stdlib libpython2.7-minimal libpython2.7-stdlib python python-minimal python2.7
  python2.7-minimal
0 upgraded, 7 newly installed, 0 to remove and 77 not upgraded.
Need to get 3,878 kB of archives.
After this operation, 16.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y_
```



```
Preparing to unpack .../libpython2.7-stdlib_2.7.12-1ubuntu0~16.04.18_amd64.deb ...
Unpacking libpython2.7-stdlib:amd64 (2.7.12-1ubuntu0~16.04.18) ...
Selecting previously unselected package python2.7.
Preparing to unpack .../python2.7_2.7.12-1ubuntu0~16.04.18_amd64.deb ...
Unpacking python2.7 (2.7.12-1ubuntu0~16.04.18) ...
Selecting previously unselected package libpython-stdlib:amd64.
Preparing to unpack .../libpython-stdlib_2.7.12-1~16.04_amd64.deb ...
Unpacking libpython-stdlib:amd64 (2.7.12-1~16.04) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for mime-support (3.59ubuntu1) ...
Setting up libpython2.7-minimal:amd64 (2.7.12-1ubuntu0~16.04.18) ...
Setting up python2.7-minimal (2.7.12-1ubuntu0~16.04.18) ...
Linking and byte-compiling packages for runtime python2.7...
Setting up python-minimal (2.7.12-1~16.04) ...
Selecting previously unselected package python.
(Reading database ... 82445 files and directories currently installed.)
Preparing to unpack .../python_2.7.12-1~16.04_amd64.deb ...
Unpacking python (2.7.12-1~16.04) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up libpython2.7-stdlib:amd64 (2.7.12-1ubuntu0~16.04.18) ...
Setting up python2.7 (2.7.12-1ubuntu0~16.04.18) ...
Setting up libpython-stdlib:amd64 (2.7.12-1~16.04) ...
Setting up python (2.7.12-1~16.04) ...
root@ubuntu:/opt/ssd20x/boot#
```

5.6 Check the python version.

`ls -la /usr/bin/python*`

```
root@ubuntu:/opt/ssd20x/boot# ls -la /usr/bin/python*
lrwxrwxrwx 1 root root      9 Nov 23  2017 /usr/bin/python -> python2.7
lrwxrwxrwx 1 root root      9 Nov 23  2017 /usr/bin/python2 -> python2.7
-rwxr-xr-x 1 root root 3492624 Mar  1  2021 /usr/bin/python2.7
lrwxrwxrwx 1 root root      9 Apr 13 02:32 /usr/bin/python3 -> python3.5
-rwxr-xr-x 2 root root 4456208 Jul 19  2020 /usr/bin/python3.5
-rwxr-xr-x 2 root root 4456208 Jul 19  2020 /usr/bin/python3.5m
lrwxrwxrwx 1 root root     10 Apr 13 02:32 /usr/bin/python3m -> python3.5m
root@ubuntu:/opt/ssd20x/boot#
```

5.7 Compile again with the following error message:

`./make_boot.sh`

```
root@ubuntu:/opt/ssd20x/boot# ./make_boot.sh
arch/.../configs/.tmp_defconfig:326:warning: override: reassigning to symbol CMD_FASTBOOT
#
# configuration written to .config
#
HOSTCC scripts/basic/fixdep
HOSTCC scripts/kconfig/conf.o
HOSTCC scripts/kconfig/zconf.tab.o
HOSTLD scripts/kconfig/conf
scripts/kconfig/conf --silentoldconfig Kconfig
CHK include/config.h
GEN include/autoconf.mk
GEN include/autoconf.mk.dep
GCC version: 8.2.1
MVXU
chip_id I2M
fatal: your current branch 'master' does not have any commits yet
/bin/sh: python: command not found
Makefile:1151: recipe for target 'include/config/uboot.release' failed
make: *** [include/config/uboot.release] Error 127
```

5.8 Do the following

`rm -rf .git`

`git init`

`git checkout -b local_dev`

`git add .`

`git commit -a -m"init"`

```

root@ubuntu:/opt/ssd20x/boot# rm -rf .git
root@ubuntu:/opt/ssd20x/boot# git init
Initialized empty Git repository in /opt/ssd20x/boot/.git/
root@ubuntu:/opt/ssd20x/boot# git checkout -b local_dev
Switched to a new branch 'local_dev'
root@ubuntu:/opt/ssd20x/boot# git add .
root@ubuntu:/opt/ssd20x/boot# git commit -a -m"init"

*** Please tell me who you are.

Run

  git config --global user.email "you@example.com"
  git config --global user.name "Your Name"

to set your account's default identity.
Omit --global to set the identity only in this repository.

fatal: unable to auto-detect email address (got 'root@ubuntu.(none)')
root@ubuntu:/opt/ssd20x/boot#

```

5.9 Follow the prompts to add your email and username

git config --global user.email "you@example.com"

git config --global user.name "your Name"

```

root@ubuntu:/opt/ssd20x/boot# git config --global user.email "zqd@geniatech.com"
root@ubuntu:/opt/ssd20x/boot# git config --global user.name "zqd"

```

5.10 git takes effect

git commit -a -m"init"

```

create mode 100755 tools/os_support.c
create mode 100755 tools/os_support.h
create mode 100755 tools/palmtree0680/flash_u-boot.c
create mode 100755 tools/patman/README
create mode 100755 tools/patman/checkpatch.py
create mode 100755 tools/patman/command.py
create mode 100755 tools/patman/commit.py
create mode 100755 tools/patman/cros_subprocess.py
create mode 100755 tools/patman/get_maintainer.py
create mode 100755 tools/patman/gitutil.py
create mode 100755 tools/patman/patchstream.py
create mode 120000 tools/patman/patman
create mode 100755 tools/patman/patman.py
create mode 100755 tools/patman/project.py
create mode 100755 tools/patman/series.py
create mode 100755 tools/patman/settings.py
create mode 100755 tools/patman/terminal.py
create mode 100755 tools/patman/test.py
create mode 100755 tools/pbl_crc32.c
create mode 100755 tools/pbl_crc32.h
create mode 100755 tools/pblimage.c
create mode 100755 tools/pblimage.h
create mode 100755 tools/proftool.c
create mode 100755 tools/relocate-rela.c
create mode 100755 tools/scripts/define2mk.sed
create mode 100755 tools/socfpimage.c
create mode 100755 tools/ublimage.c
create mode 100755 tools/ublimage.h
create mode 100755 tools/ubsha1.c
create mode 100755 tools/xway-swap-bytes.c
root@ubuntu:/opt/ssd20x/boot#

```

5.11 boot is compiled again and finished.

./make_boot.sh

```
Total output bytes: 313107
Success.
xz: u-boot.bin.xz: File already has '.xz' suffix, skipping

u-boot_spinand.mz.img.bin
./mkimage -A arm -O u-boot -C mz -a 0 -e 0 -n MUX4##I2M#g8d141abCM_UBT1501#XUM -d u-boot.bin.mz u-bo
ot_spinand.mz.img.bin
Image Name: MUX4##I2M#g8d141abCM_UBT1501#XUM
Created: Thu Apr 13 20:47:31 2023
Image Type: ARM U-Boot Kernel Image (mz compressed)
Data Size: 313107 Bytes = 305.77 kB = 0.30 MB
Load Address: 00000000
Entry Point: 00000000

u-boot_spinand.xz.img.bin
./mkimage -A arm -O u-boot -C xz -a 0 -e 0 -n MUX4##I2M#g8d141abCM_UBT1501#XUM -d u-boot.bin.xz u-bo
ot_spinand.xz.img.bin
Image Name: MUX4##I2M#g8d141abCM_UBT1501#XUM
Created: Thu Apr 13 20:47:31 2023
Image Type: ARM U-Boot Kernel Image (lzma compressed)
Data Size: 236272 Bytes = 230.73 kB = 0.23 MB
Load Address: 00000000
Entry Point: 00000000

u-boot_spinand.img.bin
./mkimage -A arm -O u-boot -C none -a 0 -e 0 -n MUX4##I2M#g8d141abCM_UBT1501#XUM -d u-boot.bin u-bo
t_spinand.img.bin
Image Name: MUX4##I2M#g8d141abCM_UBT1501#XUM
Created: Thu Apr 13 20:47:31 2023
Image Type: ARM U-Boot Kernel Image (uncompressed)
Data Size: 660712 Bytes = 645.23 kB = 0.63 MB
Load Address: 00000000
Entry Point: 00000000

root@ubuntu:/opt/ssd20x/boot# _
```

6、Copy uboot to project

In the boot directory, run sh

./copy_uboot_to_project.sh

```
root@ubuntu:/opt/ssd20x/boot# ./copy_uboot_to_project.sh
root@ubuntu:/opt/ssd20x/boot#
```

7、Compile kernel

In the kernel directory, run sh

./make_kernel.sh

```
root@ubuntu:/opt/ssd20x/kernel# ./make_kernel.sh
Extract CHIP NAME (infinity2m) to '.sstar_chip.txt'
make[1]: Entering directory '/opt/ssd20x/kernel'
HOSTCC scripts/basic/fixdep
HOSTCC scripts/kconfig/conf.o
SHIPPED scripts/kconfig/zconf.tab.c
SHIPPED scripts/kconfig/zconf.lex.c
HOSTCC scripts/kconfig/zconf.tab.o
```



```
CC      fs/fat/msdos.mod.o
LD [M]  fs/fat/msdos.ko
CC      fs/fat/vfat.mod.o
LD [M]  fs/fat/vfat.ko
CC      fs/lockd/lockd.mod.o
LD [M]  fs/lockd/lockd.ko
CC      fs/nfs/nfs.mod.o
LD [M]  fs/nfs/nfs.ko
CC      fs/nfs/nfsv2.mod.o
LD [M]  fs/nfs/nfsv2.ko
CC      fs/nfs_common/grace.mod.o
LD [M]  fs/nfs_common/grace.ko
CC      fs/nls/nls_utf8.mod.o
LD [M]  fs/nls/nls_utf8.ko
CC      fs/ntfs/ntfs.mod.o
LD [M]  fs/ntfs/ntfs.ko
CC      net/802/p8022.mod.o
LD [M]  net/802/p8022.ko
CC      net/802/psnap.mod.o
LD [M]  net/802/psnap.ko
CC      net/802/stp.mod.o
LD [M]  net/802/stp.ko
CC      net/bridge/bridge.mod.o
LD [M]  net/bridge/bridge.ko
CC      net/llc/llc.mod.o
LD [M]  net/llc/llc.ko
CC      net/sunrpc/sunrpc.mod.o
LD [M]  net/sunrpc/sunrpc.ko

Packing modules to '/opt/ssd20x/kernel/modules'
```

```
make[1]: Leaving directory '/opt/ssd20x/kernel'
root@ubuntu:/opt/ssd20x/kernel#
```

8、Update kernel to project

In the kernel directory.run sh

```
# ./update_kernel.sh
```

```
root@ubuntu:/opt/ssd20x/kernel# ./update_kernel.sh
root@ubuntu:/opt/ssd20x/kernel# _
```

9、Compile project

In the kernel directory, If the kernel ko section is changed first run sh

```
# ./update_kernel_module.sh,
```

If not,run

./make_project.sh

```
make distclean
make[1]: Entering directory '/opt/ssd20x/project'
make -C image clean
make[2]: Entering directory '/opt/ssd20x/project/image'
rm -rf /opt/ssd20x/project/image/output
make[2]: Leaving directory '/opt/ssd20x/project/image'
make -f kbuild/4.9.84/kbuild.mk symbol_link_clean
make[2]: Entering directory '/opt/ssd20x/project'
rm /opt/ssd20x/project/kbuild/4.9.84/include/config -rfv
rm /opt/ssd20x/project/kbuild/4.9.84/include/generated -rfv
rm /opt/ssd20x/project/kbuild/4.9.84/Module.symvers -rfv
rm /opt/ssd20x/project/kbuild/4.9.84/.config -rfv
rm /opt/ssd20x/project/kbuild/4.9.84/Makefile -rfv
rm /opt/ssd20x/project/kbuild/4.9.84/scripts -rfv
rm /opt/ssd20x/project/kbuild/4.9.84/include -rfv
rm /opt/ssd20x/project/kbuild/4.9.84/drivers -rfv
rm /opt/ssd20x/project/kbuild/4.9.84/arch -rfv
make[2]: Leaving directory '/opt/ssd20x/project'
make[1]: Leaving directory '/opt/ssd20x/project'
sed -i '/CLEAN_KEEP_RELEASE/d' configs/current.configs
make -f kbuild/4.9.84/kbuild.mk symbol_link

make[2]: Entering directory '/opt/ssd20x/project/image'
make[2]: Nothing to be done for 'boot_images'.
make[2]: Leaving directory '/opt/ssd20x/project/image'
make scripts
make[2]: Entering directory '/opt/ssd20x/project/image'
mkdir -p /opt/ssd20x/project/image/output/images/scripts
make set_partition
make[3]: Entering directory '/opt/ssd20x/project/image'
make[3]: Leaving directory '/opt/ssd20x/project/image'
make cis_spinand_script ipl_spinand_script ipl_cust_spinand_script uboot_spinand_script logo_spi
nand_script kernel_spinand_script rootfs_spinand_ubifs_script miservice_spinand_ubifs_script custo
mer_spinand_ubifs_script appconfigs_spinand_ubifs_script ubi_spinand_partition_script ubi_spinand_co
nfig_script
make[3]: Entering directory '/opt/ssd20x/project/image'
kernel-image done!!!
make[3]: Nothing to be done for 'ubi_spinand_partition_script'.
make[3]: Leaving directory '/opt/ssd20x/project/image'
if [ "cis" != "" ]; then
    echo estar scripts/[[cis.es >> /opt/ssd20x/project/image/output/images/auto_update.txt; \
fi;
if [ "cis" != "" ]; then
    echo estar scripts_bin/[[cis.es >> /opt/ssd20x/project/image/output/images/auto_update_bin.t
xt; \
fi;
make[2]: Leaving directory '/opt/ssd20x/project/image'
make[1]: Leaving directory '/opt/ssd20x/project/image'
./split_partion.sh
split customer image

customer.ubifs.0
split -b 35m :0x2300000
total size :0x30CB000
customer.ubifs.0 is ready!
customer.ubifs.1 is ready!
root@ubuntu:/opt/ssd20x/project#
```

You can get the system image, the image output directory is in project/image/output/images/, when you use TFTP to upgrade, specify the server directory to project/image/output/images

```
root@ubuntu:/opt/ssd20x/project/image/output/images# ls
appconfigs.ubifs      boot                customer.ubifs.0    ipl_s.bin           miservice.ubifs     scripts_bin
auto_update_bin.txt   cis.bin            customer.ubifs.1    kernel              rootfs.ubifs        uboot_s.bin
auto_update.txt       customer.ubifs     ipl_cust_s.bin     logo                scripts
```

To compile ssd201 and ssd201 differently, edit the make_project.sh file and change the location shown below to the default of 128, which is compiling ssd202. ssd201 is 64,ssd202 is 128.

vi make_project.sh

```
#####  
# Copyright (C) 2021 TYKJ Ltd. All rights reserved.  
#  
# ♦ ♦ ♦ ♦ make_project.sh  
# ♦ ♦ ♦ ♦ zhangt  
# ♦ ♦ ♦ ♦ 2021♦ 07♦ 20♦  
# ♦ ♦ ♦ ♦  
#  
#####  
./setup_config.sh ./configs/nvr/i2m/8.2.1/spinand.glibc.011a.128  
make clean  
make image
```

