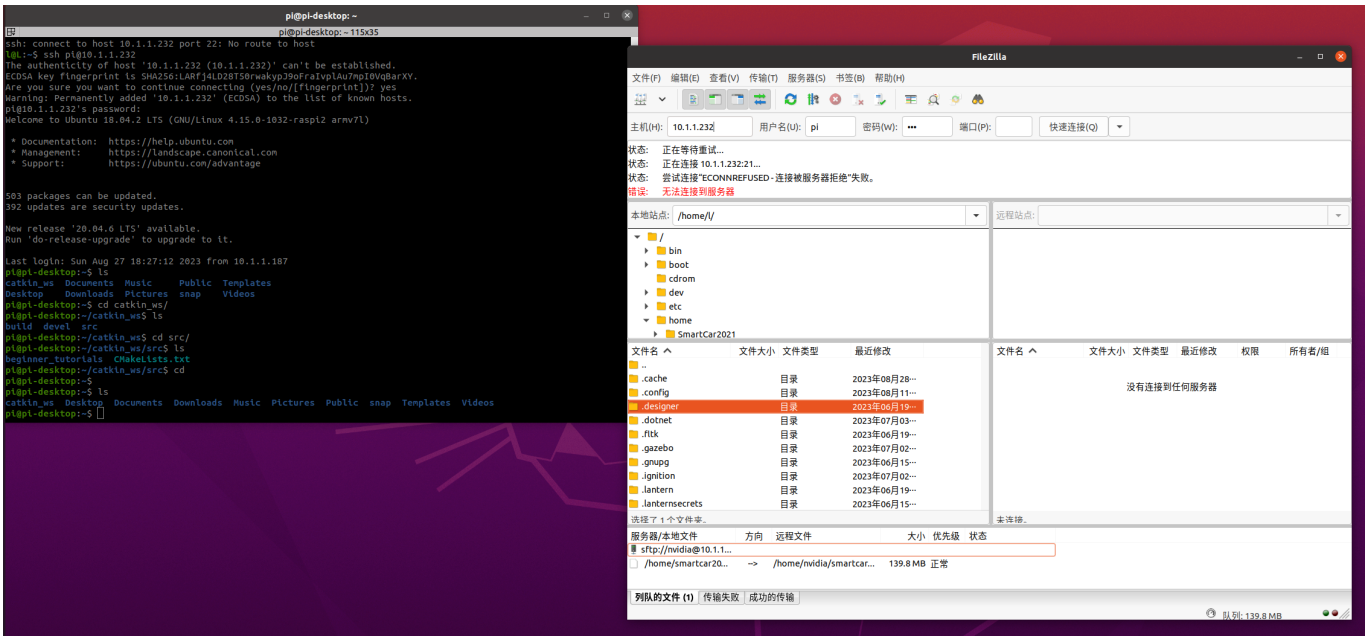
代码移植与编译

利用FileZilla传输代码

- FileZilla连接树梅派



无法直接连接到树梅派

在“文件”中新建站点，协议选择“SFTP”，输入主机和用户密码即可连接成功

- 代码传输

将代码打包后发送给树梅派

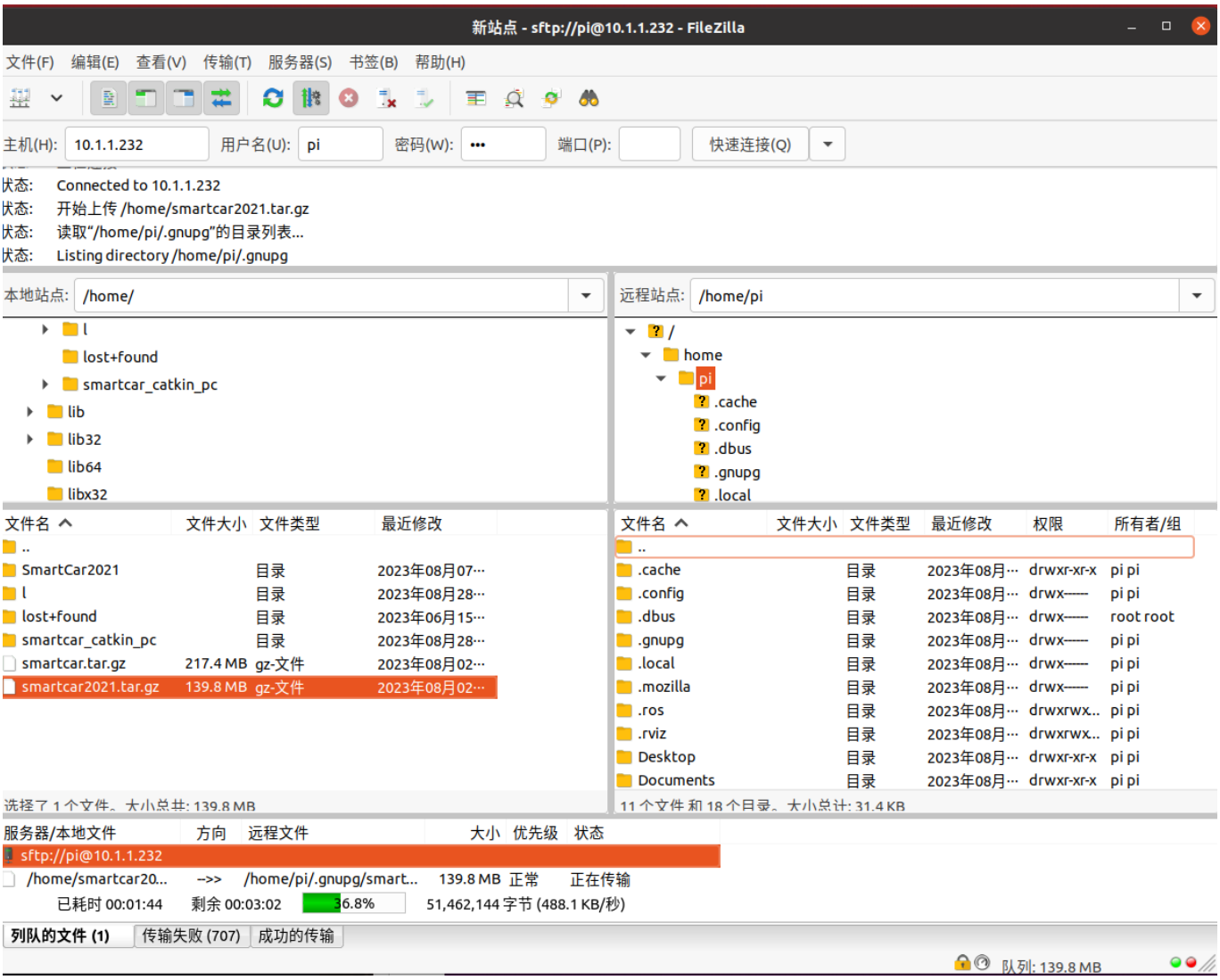
传输失败

原因：pi中的文件夹权限不够

在终端输入

```
cd ..
sudo chmod -R 777 pi/
```

即可正常传输


新站点 - sftp://pi@10.1.1.232 - FileZilla
文件(F) 编辑(E) 查看(V) 传输(T) 服务器(S) 书签(B) 帮助(H)
主机(H): 10.1.1.232 用户名(U): pi 密码(W): ••• 端口(P): 快速连接(Q)
状态: Connected to 10.1.1.232
状态: 开始上传 /home/smartcar2021.tar.gz
状态: 读取"/home/pi/.gnupg"的目录列表...
状态: Listing directory /home/pi/.gnupg
本地站点: /home/
远程站点: /home/pi
l
lost+found
smartcar_catkin_pc
lib
lib32
lib64
libx32
/
home
pi
.cache
.config
.dbus
.gnupg
.local
文件名 文件大小 文件类型 最近修改
SmartCar2021 目录 2023年08月07…
l 目录 2023年08月28…
lost+found 目录 2023年06月15…
smartcar_catkin_pc 目录 2023年08月28…
smartcar.tar.gz 217.4 MB gz-文件 2023年08月02…
smartcar2021.tar.gz 139.8 MB gz-文件 2023年08月02…
文件名 文件大小 文件类型 最近修改 权限 所有者/组
.cache 目录 2023年08月… drwxr-xr-x pi pi
.config 目录 2023年08月… drwx------ pi pi
.dbus 目录 2023年08月… drwx------ root root
.gnupg 目录 2023年08月… drwx------ pi pi
.local 目录 2023年08月… drwx------ pi pi
.mozilla 目录 2023年08月… drwx------ pi pi
.ros 目录 2023年08月… drwxrwx... pi pi
.rviz 目录 2023年08月… drwxrwx... pi pi
Desktop 目录 2023年08月… drwxr-xr-x pi pi
Documents 目录 2023年08月… drwxr-xr-x pi pi
11 个文件 和 18 个目录。大小总计: 31.4 KB
服务器/本地文件 方向 远程文件 大小 优先级 状态
sftp://pi@10.1.1.232
/home/smartcar20... -->> /home/pi/.gnupg/smart... 139.8 MB 正常 正在传输
已耗时 00:01:44 剩余 00:03:02 36.8% 51,462,144 字节 (488.1 KB/秒)
列队的文件 (1) 传输失败 (707) 成功的传输
队列: 139.8 MB

- 解压


pi@pi-desktop:~$ ls
catkin_ws Documents Music Public snap Videos
Desktop Downloads Pictures smartcar2021.tar.gz Templates
pi@pi-desktop:~$ tar -zxvf smartcar2021.tar.gz
./SmartCar2021/
./SmartCar2021/img_README/
./SmartCar2021/img_README/car.jpg
./SmartCar2021/img_README/car_structure.png
./SmartCar2021/img_README/wired_connection.png
./SmartCar2021/img_README/gamepad.jpg
./SmartCar2021/img_README/lb.jpg
./SmartCar2021/img_README/mode_d.jpg
./SmartCar2021/README.md

编译

直接编译

```
pi@pi-desktop:~/SmartCar2021/motorControl$ catkin_make
Base path: /home/pi/SmartCar2021/motorControl
Source space: /home/pi/SmartCar2021/motorControl/src
Build space: /home/pi/SmartCar2021/motorControl/build
Devel space: /home/pi/SmartCar2021/motorControl/devel
Install space: /home/pi/SmartCar2021/motorControl/install
WARNING: Package name "motorControl" does not follow the naming conventions. It should start with a lower case lette
r and only contain lower case letters, digits, underscores, and dashes.
####
#### Running command: "cmake /home/pi/SmartCar2021/motorControl/src -DCATKIN_DEVEL_PREFIX=/home/pi/SmartCar2021/moto
rControl/devel -DCMAKE_INSTALL_PREFIX=/home/pi/SmartCar2021/motorControl/install -G Unix Makefiles" in "/home/pi/Sma
rtCar2021/motorControl/build"
####
CMake Error: The current CMakeCache.txt directory /home/pi/SmartCar2021/motorControl/build/CMakeCache.txt is differe
nt than the directory /home/nvidia/SmartCar2021/motorControl/build where CMakeCache.txt was created. This may result
 in binaries being created in the wrong place. If you are not sure, reedit the CMakeCache.txt
CMake Error: The source "/home/pi/SmartCar2021/motorControl/src/CMakeLists.txt" does not match the source "/home/nvi
dia/SmartCar2021/motorControl/src/CMakeLists.txt" used to generate cache.  Re-run cmake with a different source dire
ctory.
Invoking "cmake" failed
pi@pi-desktop:~/SmartCar2021/motorControl$
```

原本在tx2中编译后的文件仍然存在

删除build与devel目录后再次编译

```
pi@pi-desktop:~/SmartCar2021/motorControl$ rm -rf build/ devel/
pi@pi-desktop:~/SmartCar2021/motorControl$ ls
absAngle.json  master-base.sh              README.md         src
end.txt        MotorAngle_pole_vertex.json  RobotConfig.json  startJoy.launch
pi@pi-desktop:~/SmartCar2021/motorControl$ catkin_make
```

```
-- Could NOT find serial (missing: serial_DIR)
-- Could not find the required component 'serial'. The following CMake error indicates that you ei
ther need to install the package with the same name or change your environment so that it can be f
ound.
CMake Error at /opt/ros/melodic/share/catkin/cmake/catkinConfig.cmake:83 (find_package):
  Could not find a package configuration file provided by "serial" with any
  of the following names:

    serialConfig.cmake
    serial-config.cmake

  Add the installation prefix of "serial" to CMAKE_PREFIX_PATH or set
  "serial_DIR" to a directory containing one of the above files.  If "serial"
  provides a separate development package or SDK, be sure it has been
  installed.
Call Stack (most recent call first):
  motorControl/CMakeLists.txt:10 (find_package)


-- Configuring incomplete, errors occurred!
See also "/home/pi/SmartCar2021/motorControl/build/CMakeFiles/CMakeOutput.log".
See also "/home/pi/SmartCar2021/motorControl/build/CMakeFiles/CMakeError.log".
Invoking "cmake" failed
```

缺少serial包

```
pi@pi-desktop:~/SmartCar2021/motorControl$ sudo apt-get install ros-noetic-serial
[sudo] password for pi:
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package ros-noetic-serial
pi@pi-desktop:~/SmartCar2021/motorControl$
```

安装后再次编译

缺少消息包

```
-- Could not find the required component 'move_base_msgs'. The following CMake error indicates tha
t you either need to install the package with the same name or change your environment so that it
can be found.
CMake Error at /opt/ros/melodic/share/catkin/cmake/catkinConfig.cmake:83 (find_package):
  Could not find a package configuration file provided by "move_base_msgs"
  with any of the following names:

    move_base_msgsConfig.cmake
    move_base_msgs-config.cmake
```

```
sudo apt-get install ros-melodic-navigation
```

再次编译

```
e
/home/pi/SmartCar2021/motorControl/src/motorControl/lib/libcontrolcan/arm/64bit/libcontrolcan.so: fi
le not recognized: File format not recognized
collect2: error: ld returned 1 exit status
motorControl/CMakeFiles/RobotPoseNode.dir/build.make:192: recipe for target '/home/pi/SmartCar2021/m
otorControl/devel/lib/motorControl/RobotPoseNode' failed
make[2]: *** [/home/pi/SmartCar2021/motorControl/devel/lib/motorControl/RobotPoseNode] Error 1
CMakeFiles/Makefile2:469: recipe for target 'motorControl/CMakeFiles/RobotPoseNode.dir/all' failed
make[1]: *** [motorControl/CMakeFiles/RobotPoseNode.dir/all] Error 2
make[1]: *** Waiting for unfinished jobs....
```

无法辨认.so文件

经过验证文件存在且完好

```
pi@pi-desktop:~/SmartCar2021/motorControl$ ls /home/pi/SmartCar2021/motorControl/src/motorControl/li
b/libcontrolcan/arm/64bit/libcontrolcan.so
/home/pi/SmartCar2021/motorControl/src/motorControl/lib/libcontrolcan/arm/64bit/libcontrolcan.so
pi@pi-desktop:~/SmartCar2021/motorControl$ cd
pi@pi-desktop:~$ ls /home/pi/SmartCar2021/motorControl/src/motorControl/lib/libcontrolcan/arm/64bit/
libcontrolcan.so
/home/pi/SmartCar2021/motorControl/src/motorControl/lib/libcontrolcan/arm/64bit/libcontrolcan.so
pi@pi-desktop:~$ file /home/pi/SmartCar2021/motorControl/src/motorControl/lib/libcontrolcan/arm/64bi
t/libcontrolcan.so
/home/pi/SmartCar2021/motorControl/src/motorControl/lib/libcontrolcan/arm/64bit/libcontrolcan.so: EL
F 64-bit LSB shared object, ARM aarch64, version 1 (SYSV), dynamically linked, BuildID[sha1]=bea91ca
2e7e6b4b8663ed084c75177c07424522c, with debug_info, not stripped
pi@pi-desktop:~$
```

可能为文件兼容问题

```
set(LIB_ARCHITECTURES arm)
find_library(LIBCONTROLCAN libcontrolcan.so ${PROJECT_SOURCE_DIR}/lib/libcontrolcan/${LIB_ARCHITECTURES}
/64bit/)
```

树梅派系统架构为arm7l

即arm32位架构系统

源代码兼容的为arm64位系统

```
pi@pi-desktop:~$ uname -m
armv7l
```

```
vim CMakeLists.txt
```

将64改为32

删除build与devel目录后重新编译

编译成功