xsens 安装配置记录

安装ros驱动

```
sudo apt-get install ros-melodic-xsens-driver
```

下载软件包

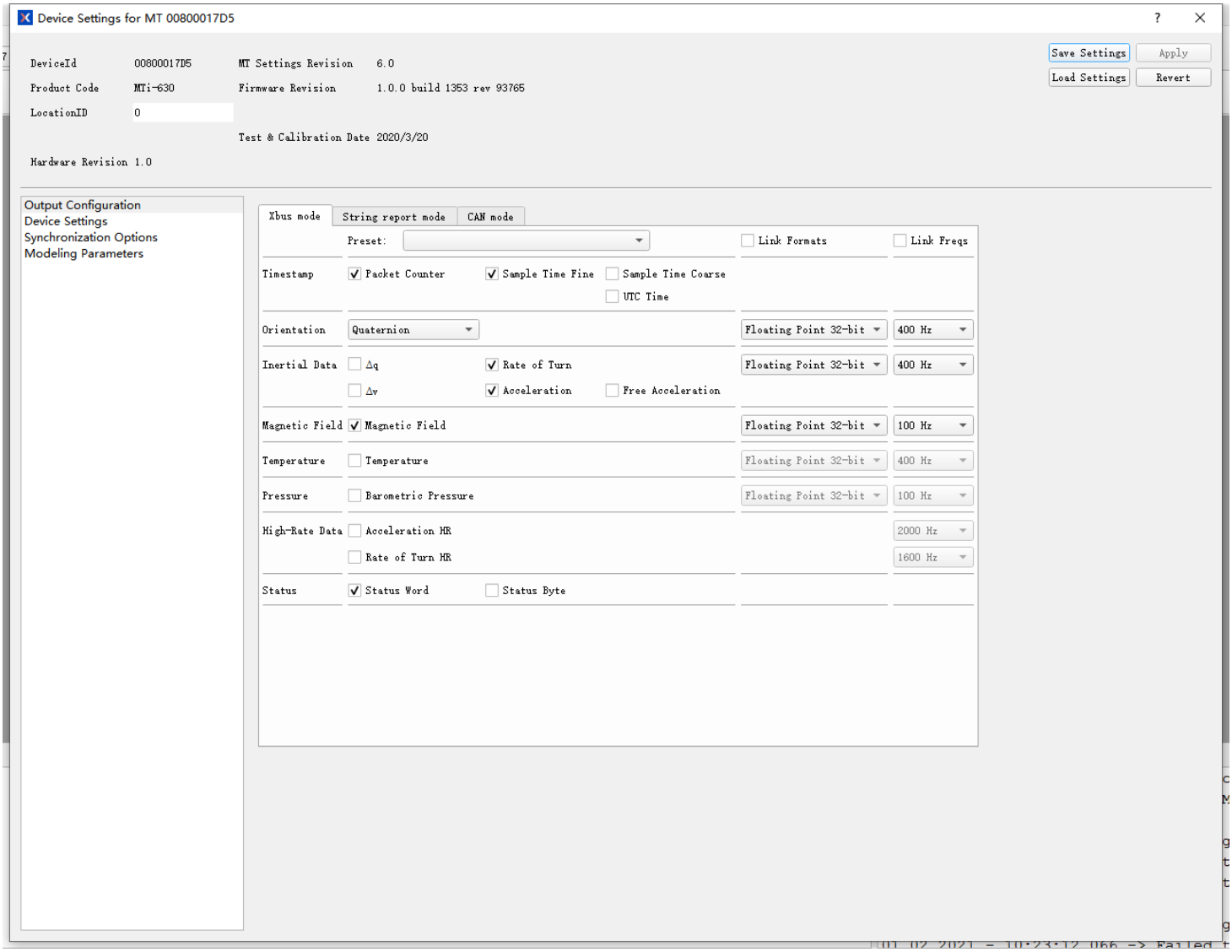
链接：https://pan.baidu.com/s/1NtMoWnVu2NhpfZzoKpHYIA
提取码：bhjx

安装sdk（文件在软件包中）

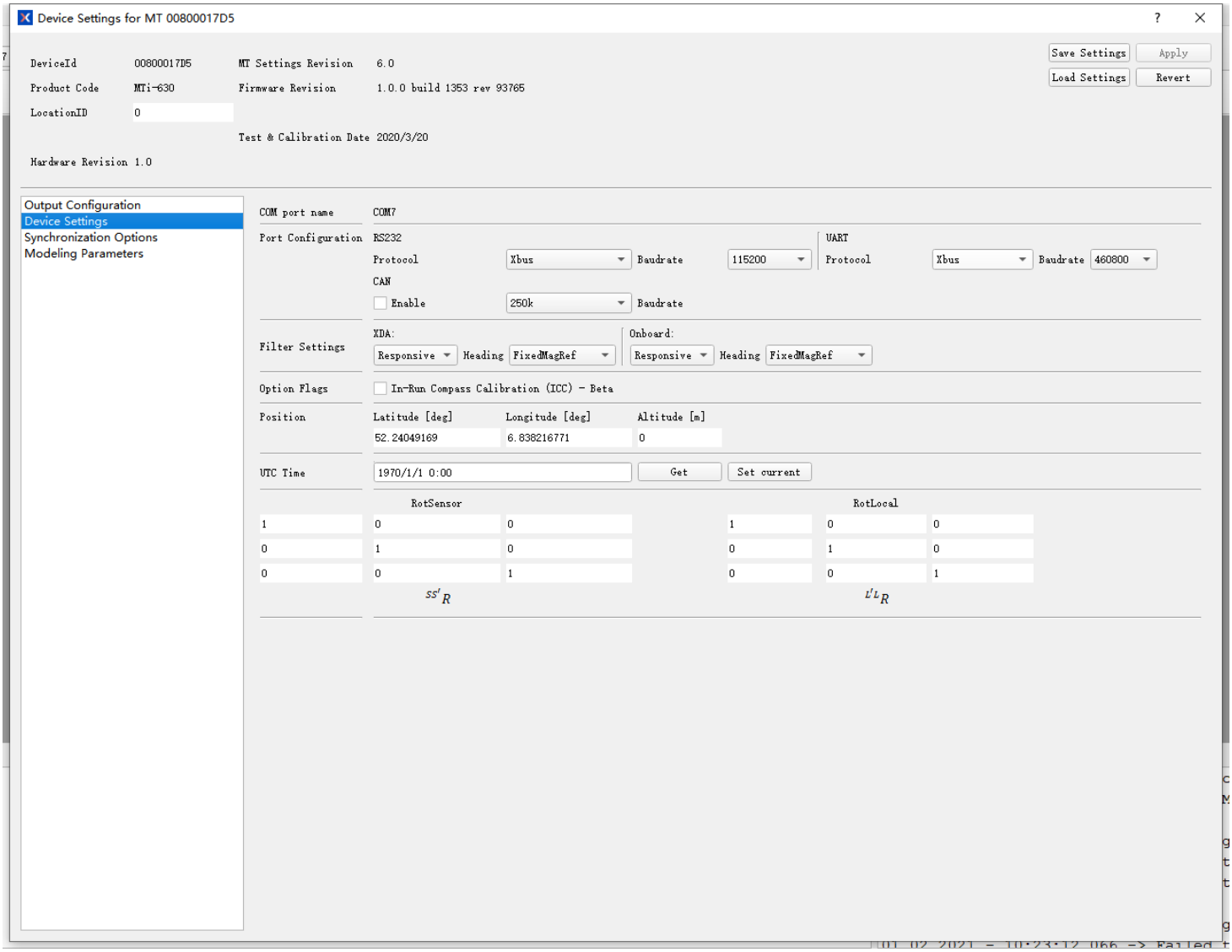
```
sudo ./mtsdk_linux-x64_2020.3.sh
```

在windows上安装MT manager（文件在软件包中，仅配置时需要）

配置如下：



- 旋转角必须设置为四元数，不可使用欧拉角
- 惯性数据输出为Rate of Turn 以及 Accelerate（带重力加速度）
- Zed2的频率为300hz，因此频率设置为400hz



其中，UART接口的波特率与传输数据的频率有关，波特率太低会导致丢失数据，在双400hz的频率下，460800的波特率是可以正常工作的。

滤波设置使用场景及介绍如下：

Table 16: Filter profiles for MTi-620 and MTi-630

Name	Product	Description	Typical applications
Responsive	MTi-620 MTi-630	This filter profile is designed for indoor applications as well as applications that experience high dynamics and jerky movements. When the MTi is static, an automatic gyro bias estimation is performed in the background.	• Outdoor/Indoor handling objects • Indoor ground vehicles • Outdoor/Indoor head tracker • Indoor mapping, outdoor mapping if handheld (e.g. tripods with camera, backpack) • Industrial robotic arm
Robust	MTi-620 MTi-630	This filter profile is suitable for most of the applications. Compared to the other filter profiles it has a more robust tuning. When the MTi is static, an automatic gyro bias estimation is performed in the background.	• Ships/vessels • Automotive • Ground vehicles outdoor • Outdoor mapping with vehicles
General[12]	MTi-620 MTi-630	This filter profile behaves like the General filter profile implemented for the previous generation Xsens Products (e.g. MTi-30). It is more sensitive to the magnetic field changes. It does not perform an automatic gyro bias estimation in background. This filter profile cannot be combined with the FixedMagRef heading behaviour.	• Automotive • Ground vehicles outdoor • Outdoor mapping with vehicles

Table 17: Heading Behaviour

Name	Product	Description	Typical applications
NorthReference	MTi-630	This heading behaviour assumes a homogeneous magnetic environment that can be used to estimate a stable North referenced heading.	All applications that require a North referenced heading and are used in a homogeneous magnetic field.
FixedMagRef	MTi-630	This heading behaviour is based on the idea that the heading is not necessarily referenced to the local magnetic North. Instead, it maintains a fixed heading reference frame based on what is defined when the MTi is powered up (based on the initially observed magnetic field). This means that there is no drift with respect to the starting frame when the local magnetic field changes. For example, when moving from room A to room B, where room B has a different local magnetic field direction than room A, the heading output of the MTi does not change. This is in contrast to the NorthReference heading behaviour, which forces the MTi to estimate the heading based on the local magnetic field.	All applications that are used in environments where different magnetic fields are present (e.g. mixed indoor/outdoor applications).
VRU	MTi-620 MTi-630	The yaw is unreferenced. This means that it is initialized at 0° when the MTi is powered up and the yaw will be computed relative to this initial orientation. The magnetic field is not used to estimate the yaw. Because of small inaccuracies that originate when integrating gyroscope data, the Yaw output will contain an error that builds up over time, also known as "drift". Note however, that because of the working principle of the sensor fusion algorithm, the drift in yaw will be much lower than when gyroscope signals would be simply integrated.	Applications where only roll and pitch is of interest and/or applications that are used in environments where the magnetic field cannot be trusted (e.g. stabilized antenna platforms or pipeline inspection tools).
VRUAHS	MTi-620 MTi-630	This heading behaviour activates the Active Heading Stabilization (AHS) on top of the above described VRU behaviour. AHS is a software component within the sensor fusion engine designed to give a low-drift unreferenced heading solution, even in a disturbed magnetic environment. The yaw remains unreferenced, but the drift is limited[13].	Scenarios where the magnetic field cannot be trusted completely, but a stable yaw is needed.

安装ros驱动

- 从/usr/local/xsens/xsens_ros_mti_driver复制到ros的工作空间
- xsens_ros_mti_driver

首先构建ros工作空间，步骤省略

然后编译

```
pushd src/xsens_ros_mti_driver/lib/xspublic && make && popd

catkin_make -j8
```

运行demo

setserial设置低延时模式保证帧率稳定

```
sudo apt-get install setserial


sudo chmod 777 /dev/ttyUSB*
setserial /dev/ttyUSB0 low_latency
roslaunch xsens_mti_driver display.launch
```

此时已经可以读取到/imu/data数据

https://content.xsens.com/download-mt-software-suite?submissionGuid=3389d0c2-f247-448a-9cb2-8f8a81c41cd7

https://www.xsens.com/hubfs/Downloads/Software/MTSS/Releases/2020.3.0-beta/MT_Software_Suite_linux-x64_2020.3.tar.gz?hsCtaTracking=71c605d6-e52c-41ae-994d-caf701dd10a5|c589e17e-6073-4af9-b53e-a3609ac13e41

http://wiki.ros.org/xsens_mti_driver

https://base.xsens.com/hc/en-us/articles/360014235960-Interfacing-MTi-devices-with-the-NVIDIA-Jetson