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| Overview | |
| This driver is for LI-AR0234CS-STEREO-GMSL2 V1.0 camera kit with Nvidia Jetson AGX/Orin Xavier Developer kit.  This driver supports two AR0234CS-STEREO-GMSL2 cameras.  This driver supports 1920x1200@30fps,1920x1200@60fps，960x600@120fps  This driver is based on R35.1. | |
| Download link | |
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| Platform | Camera |
| Nvidia Jetson AGX Xavier/Orin Developer kit | 2 ~ LI-AR0234CS-STEREO-GMSL2\_V1.0 |
| Cable | Adapter/Carrier Board |
| 1 x FAK-SMZSMZ | 1 x NVIDIA max96712 adapt board(E3653-a03).  1 x 19VDC power supply |
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| Revision | | SVN version | Release Date | Author | Tested by | |
| 20210414 | |  | 04/14/2021 | Xingxing Gu |  | |
| Updates | | | | | | |
| Revision | Description | | | | | Release Date |
| 20210414 | First Release based on R32.5 | | | | | 20210414 |
| 20210511 | Support NVS imu driver | | | | | 20210511 |
| 20210705 | Support autoContect Switch | | | | | 20210705 |
| 20210812 | Support 32.6 | | | | | 20210812 |
| 20210918 | Support NVS | | | | | 20210918 |
| 20220301 | Support 60fps | | | | | 20220301 |
| 20220310 | Support 32.7 JP4.6.1 | | | | | 20220310 |
| 20220316 | Fix the one camera issue | | | | | 20220316 |
| 20220318 | Fix flicker issue | | | | | 20220318 |
| 20220415 | Support JP50 | | | | | 20220415 |
| 20220526 | Support JP50.1 add 960x600@120fps | | | | | 20220526 |
| 20220530 | Support Orin | | | | | 20220530 |
| 20220715 | Support IMU | | | | | 20220715 |
| 20220720 | Support IMU timestamp | | | | | 20220720 |
| 20220822 | Support 35.1 | | | | | 20220822 |
| 20220922 | Fix the ethernet issue when install the ko | | | | | 20220922 |
| Known bugs | | | | | | |
| 1. If you only have one hawk camera, you can only connect port 1 2. Orin have some issue to support IMU | | | | | | |

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| Setup Procedure 1/2 |
| **Driver installation:**  1. Download the R35.1 OS Image (from link below) to your Ubuntu OS on Intel x64 Host PC (we are using Ubuntu 18.04, virtual machine is fine) and follow the l4t\_quick\_start\_guide to install the Jetpack to Xavier.  3. Copy the tegra194-p2888-0001-p2822-0000.dtb or tegra234-p3701-0000-p3737-0000.dtb to the /boot/dtb/kernel\_ tegra194-p2888-0001-p2822-0000.dtb or /boot/dtb/kernel\_tegra234-p3701-0000-p3737-0000.dtb in your Xavier/Orin platform. |

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| Setup Procedure 2/2 |
| 5. After boot up Xavier/Orin, copy “Image” to /boot on Xavier.    6. Plug in 19V power supply to Xavier/Orin kit.  7. insmod max96712.ko, ar0234.ko bmi088.ko orderly.  8. open a terminal and do below command. You will get live video output.  $ nvgstcapture  8. Use Ctrl+C to close the video and copy camera\_overrides.isp to /var/nvidia/nvcam/settings on Xavier/Orin and do below two command.  $ sudo chmod 664 /var/nvidia/nvcam/settings/camera\_overrides.isp  $ sudo chown root:root /var/nvidia/nvcam/settings/camera\_overrides.isp |

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| Run Camera |
| 1. Argus software  Download the Multimedia package from link below and copy it to Xavier/Orin.  Open a terminal, do  sudo apt-get update  sudo apt-get install cmake libgtk-3-dev libjpeg-dev libgles2-mesa-dev libgstreamer1.0-dev  Uncompress the tgz package,  tar zxvf Multimedia\_JXAV\_R35.1.tgz  Under tegra\_multimedia\_api/argus/cmake, do  cmake ..  make  sudo make install  Do "argus\_camera --device=0” to get the video.  2. Gstreamer  gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)1920, height=(int)1200, framerate=30/1' ! nvvidconv flip-method=0 ! 'video/x-raw, format=(string)I420' ! xvimagesink -e  3. v4l2-ctl capture raw  v4l2-ctl -V --set-fmt-video=width=1920,height=1200,pixelformat=RG10 --set-ctrl bypass\_mode=0 --stream-mmap --stream-count=1 --stream-to=ar0234.raw -d /dev/video0  Please use below commands to install v4l2.  sudo apt-get update  sudo apt-get install v4l-utils |

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| Note 1/2 |
| 1. If you would like to install the Jetpack 5.0 but don’t want to re-flash the whole OS image, you can uncheck the Jetson OS and install the Jetson SDK components only. |
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| Note 2/2 |
| 4. Compile the driver  TBD |

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| IMU support |
| 1. How to access imu data in driver   Acc:  1.cd /sys/devices/platform/3180000.i2c/i2c-2/i2c-30/30-0069/iio:device0  cd scan\_elements  echo 1 >in\_accel\_x\_en  echo 1 > in\_accel\_y\_en  echo 1 > in\_accel\_z\_en  echo 1 > in\_timestamp\_en  cd ../buffer  echo 1 > enable  cd ..  cat in\_accel\_x\_raw  cat in\_accel\_y\_raw  cat in\_accel\_y\_raw  geo :  1.cd /sys/devices/platform/3180000.i2c/i2c-2/i2c-30/30-0069/iio:device1  cd scan\_elements  echo 1 >in\_anglvel\_x\_en  echo 1 >in\_anglvel\_y\_en  echo 1 > in\_anglvel\_z\_en  echo 1 > in\_timestamp\_en  cd ../buffer  echo 1 > enable  cd ..  cat in\_ anglvel\_x\_raw  cat in\_ anglvel\_y\_raw  cat in\_ anglvel\_y\_raw |

