



**LEOPARD**  
IMAGING

# LI-XAVIER-KIT-HAWK-D



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## KEY FEATURES

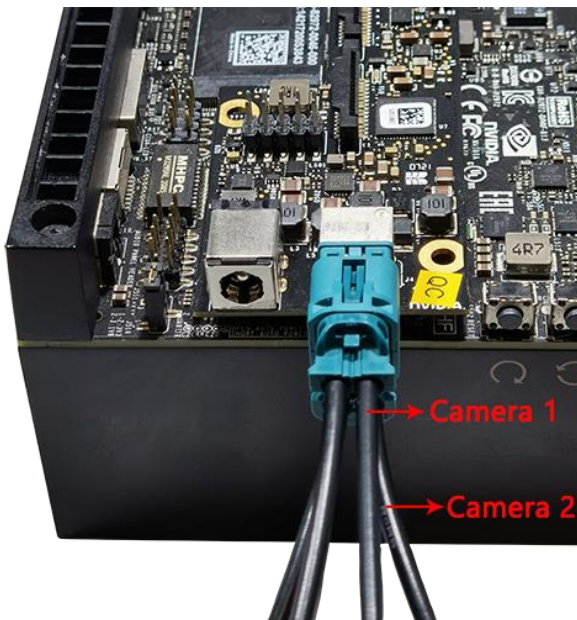
- Compatible with Nvidia® Jetson AGX Xavier™ Developer Kit
- Adapter board: E3653-A03
- Sensor: ON Semiconductor 2.3MP CMOS image sensor AR0234CS
- Active pixels: 1920 (H) x 1200 (V)
- Color camera
- Weight: ~ 438 g (E3653-A03 adapt + 2 HAWK cameras)
- Connector: FAKRA connector FAKRA Z TYPE
- Allows customization
- Part#: **LI-XAVIER-KIT-HAWK-D**

## LENS SPECIFICATIONS

Focal Length	2.8 mm
Aperture, F/#	2.0
Field of View (FOV)	147.5° diagonal
	121.5° horizontal
	73.5° vertical
Optical Distortion	< -65.3%
Relative Illumination	> 30.0%
IR Filter	650 nm IR cut filter
Glass Cover	No
Lens Mount	Active Alignment (AA)

## APPLICATIONS

- Bar Code Scanner
- 3D Scanning
- Positional Tracking
- Iris Scanning
- Machine Vision
- Augmented Reality
- Virtual Reality
- Biometrics
- Gesture Recognition



### NOTE:

- Camera connection order is based on the version of the driver. The order shown above is for the driver based on R35.3.1 (Jetpack 5.1.1).
- Nvidia® Jetson AGX Xavier™ Developer Kit is **NOT** included.

## BOM DETAILS

**Nvidia® Jetson AGX Xavier™ Developer Kit is NOT included.**

#	Items	Part Number	QTY
1	GMSL2 DeSer Board	E3653-A03	1
2	4T1 cable (length: 0.3 m)	LI-FCB-4T1-SS-0.3M-NP-A0	1
3	Fakra cable (length: 3 m)	FAK-SMZSMZ-3M	2
4	HAWK Camera	LI-AR0234CS-STEREO-GMSL2-30	2
5	Standoffs (M2.5*5)	10.05.MU0025050HCN	3
6	Screws (M2.5*4)	10.02.C025040LH4Z17	6



**E3653-A03**



**HAWK Camera**



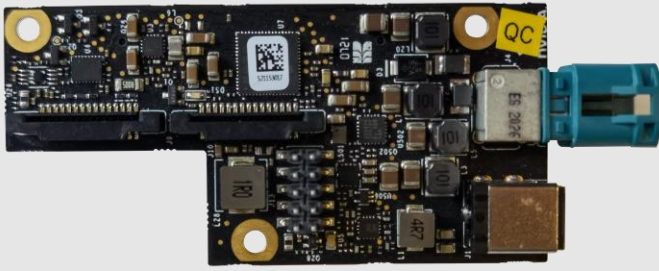
**FAK-SMZSMZ-3M**



**LI-FCB-4T1-SS-0.3M-NP-A0**



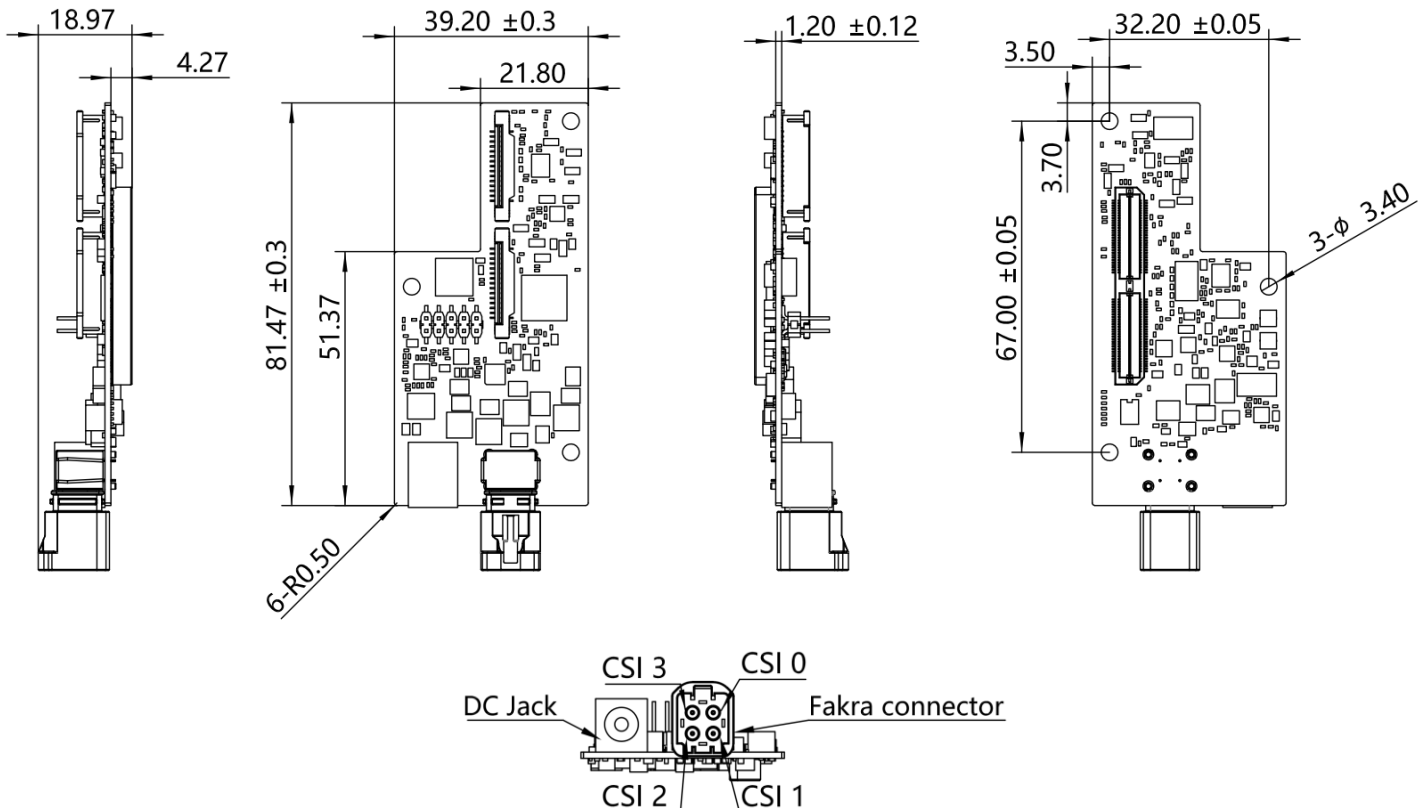
## GMSL2 DeSer Board (E3653-A03)



### TECHNICAL FEATURES

- Compatible with Nvidia® Jetson AGX Xavier™ Developer Kit and AGX Orin™ Developer Kit
- Supports up to 4 GMSL2 cameras
- DeSerializer: Maxim MAX96712
- Weight: ~ 30 g
- Part#: **E3653-A03**

### DIMENSIONS



**NOTE:** Tolerances for others unmarked are ± 0.3 mm.

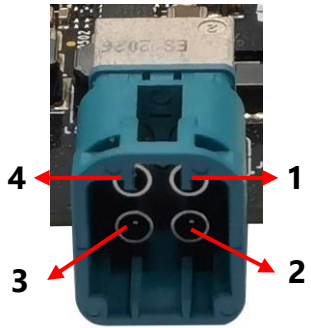
Unit: mm

# GMSL2 DeSer Board (E3653-A03)

## INTERFACES


**Interface J4 (FAKRA)**

- Part#: 1-2304168-9
- Number of positions: 4



**Interface J13 (GPIO Header for IMU)**

- Part#: TSM-105-01-T-DV-P-TR
- Number of positions: 10
- IO voltage level: 3V3



**MAX96712**

- MFP4
- MFP10
- MFP14
- MFP2
- MFP5
- MFP6
- MFP7

**Level Shifter**

**J13 Pin**

- Pin3
- Pin5
- Pin7
- Pin10
- Pin6
- Pin4
- Pin2

```

graph LR
    subgraph MAX96712
        MFP4
        MFP10
        MFP14
        MFP2
        MFP5
        MFP6
        MFP7
    end
    subgraph Level_Shifter [Level Shifter]
        LS
    end
    subgraph J13_Pin [J13 Pin]
        Pin3
        Pin5
        Pin7
        Pin10
        Pin6
        Pin4
        Pin2
    end
    MFP4 -- ACC1_INT1 --> LS
    MFP10 -- GRYO1_INT3 --> LS
    MFP14 -- TEMP1_ALERT --> LS
    MFP2 -- FRSYNC --> LS
    MFP5 -- ACC2_INT --> LS
    MFP6 -- GRYO2_INT3 --> LS
    MFP7 -- TEMP2_ALERT --> LS
    LS -- ACC1_INT1_LS --> Pin3
    LS -- GRYO1_INT3_LS --> Pin5
    LS -- TEMP1_ALERT_LS --> Pin7
    LS -- FRSYNC_LS --> Pin10
    LS -- ACC2_INT1_LS --> Pin6
    LS -- GRYO2_INT3_LS --> Pin4
    LS -- TEMP2_ALERT_LS --> Pin2
  
```

## GMSL2 DeSer Board (E3653-A03)

### INTERFACES

#### Interface J1 (External 19V)

- Part#: PJ-082BH
- Number of positions: 2
- Connector type: Jack
- Inner diameter (mm): 2.5
- Outer diameter (mm): 6.5

**NOTE:**

External 19V power supply is NOT needed for the LI-XAVIER-KIT-HAWK-D camera kit.



#### Interface J501 (To Xavier Kit)

- Part#: QTH-060-01-H-D-A
- Number of positions: 120
- Pitch: 0.5 mm
- Number of Rows: 2



## 4T1 Cable (LI-FCB-4T1-SS-0.3M-NP-A0)



### TECHNICAL FEATURES

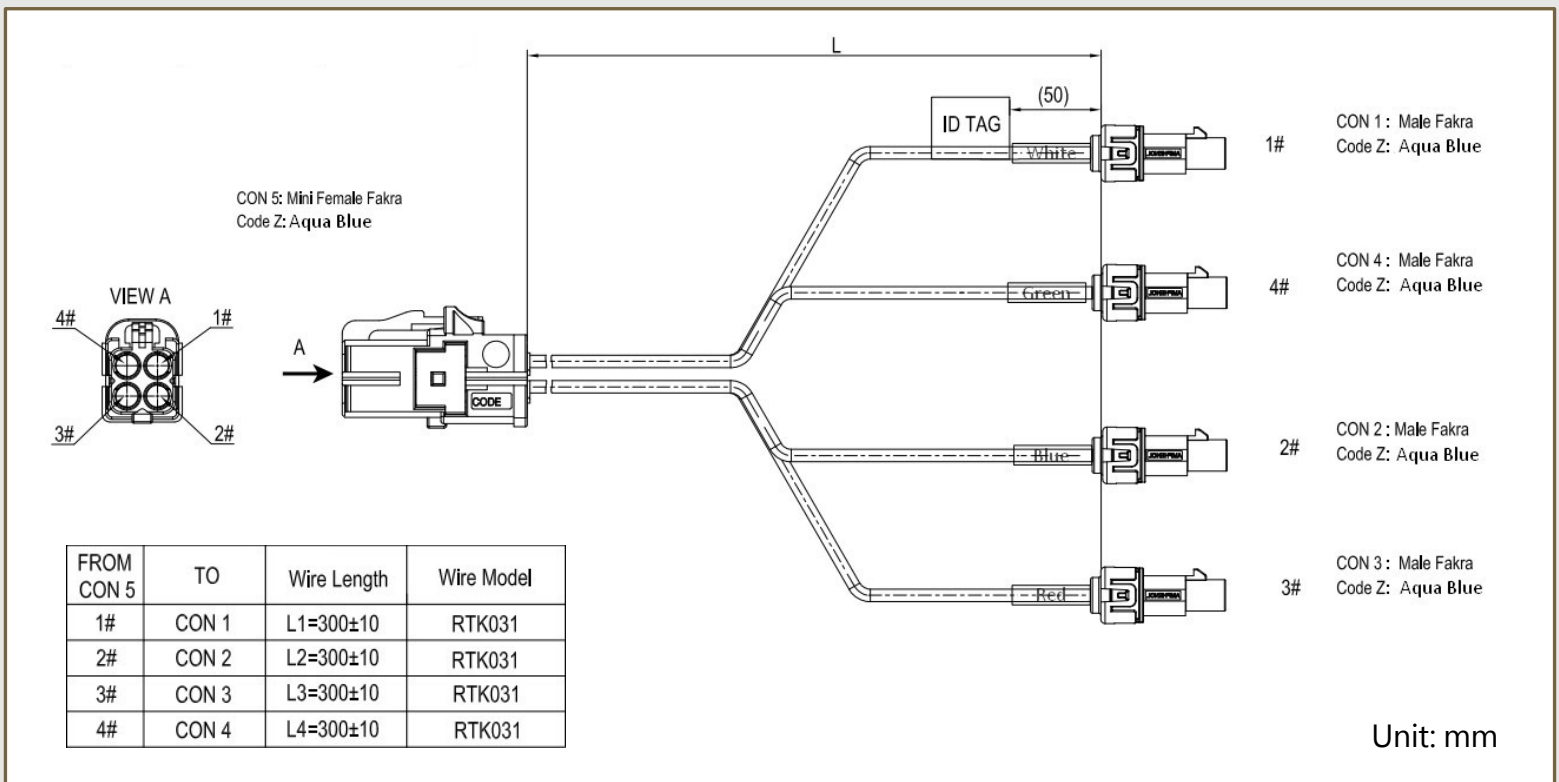
- Supports multiple length Farka cable from Leopard Imaging, including FAK-SMZSMZ-6M, FAK-SMZSMZ-5M and FAK-SMZSMZ-3M.

**NOTE:** **FAK-SMZSMZ-3M** is the default Fakra cable used in LI-XAVIER-KIT-HAWK-D. For other length, you could purchase via the following address:

- FAK-SMZSMZ-6M: <https://leopardimaging.com/product/accessories/cables/fak-smzsmz-6m/>
- FAK-SMZSMZ-5M: <https://leopardimaging.com/product/accessories/cables/fak-smzsmz-5m/>

- Its Mini Female Fakra connector is compatible with Nvidia Jetson platform
- Length:  $300 \pm 10$  mm
- Weight:  $\sim 42$  g
- Part#: **LI-FCB-4T1-SS-0.3M-NP-A0**

### MECHANICAL DIAGRAM



## HAWK Camera (LI-AR0234CS-STEREO-GMSL2-30)



### CAMERA SPECIFICATIONS

Sensor	ON Semiconductor 2.3MP CMOS Image Sensor AR0234CS
Optical Format	1/2.6"
QTY of Sensor	2
Resolution	1920 (H) x 1200 (V) (active pixels)
Pixel Size	3.0 x 3.0 $\mu\text{m}$
Baseline	150.00 mm
Recommended Working Distance	1.0 ~ 8.0 m
Output Format	10-bit RAW data
Frame Rate	60 fps @ 1920 x 1200
Shutter	Global shutter
Serializer	Maxim GMSL2
Color / Mono	Color sensor
FAKRA Connector	FAKRA Z TYPE
Certification	FCC, CE
Weight	~ 204 g
Power Supply Range	9 ~ 19 VDC
Part#	<b>LI-AR0234CS-STEREO-GMSL2-30</b>

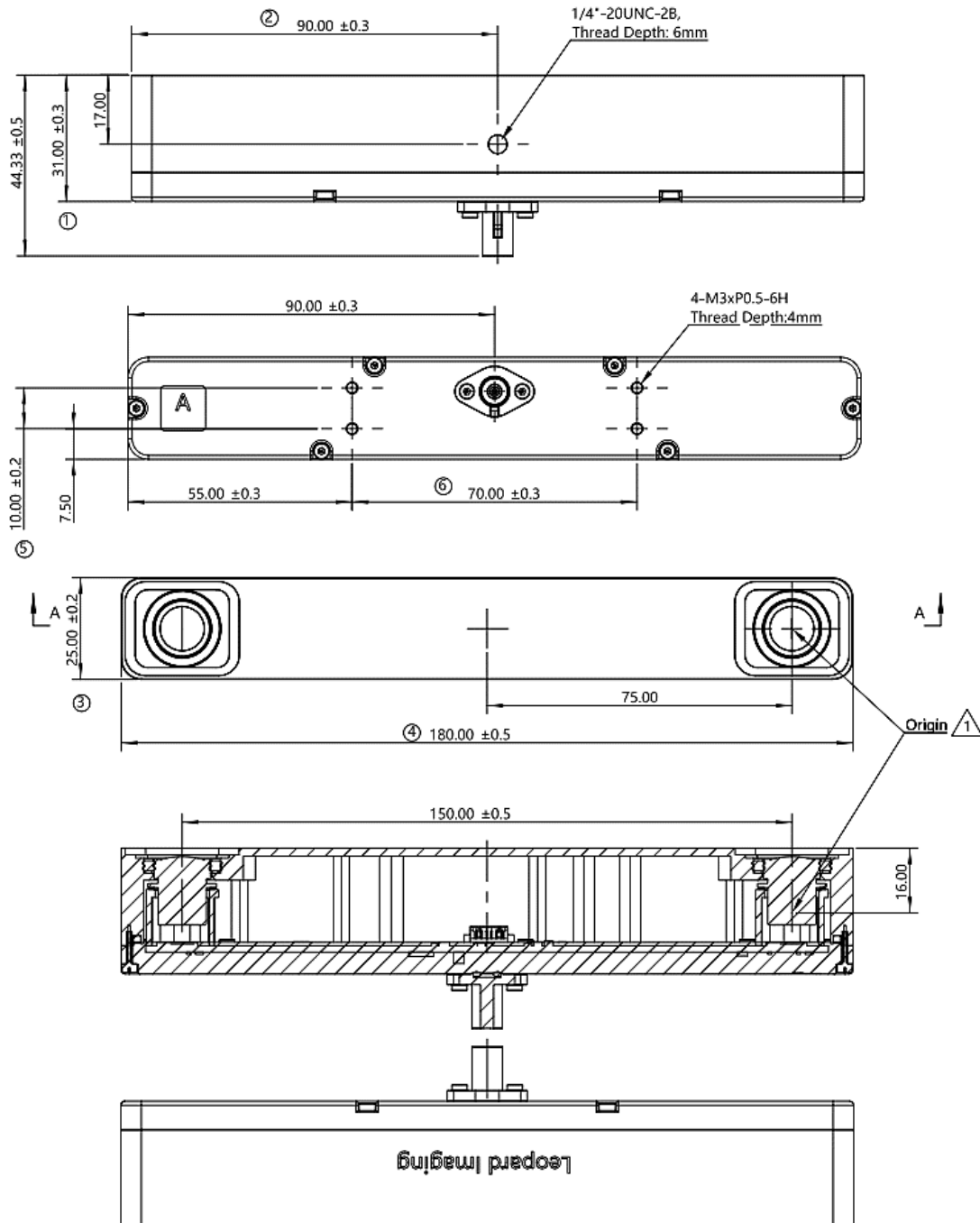
### IMAGE ORIENTATION





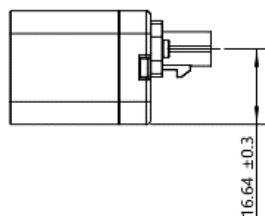
# HAWK Camera (LI-AR0234CS-STEREO-GMSL2-30)

## DIMENSIONS



### NOTE:

- Other unmarked tolerances are  $\pm 0.3$  mm.
- ⊗ marked are important sizes.
- △ marked is revision version.
- For unmarked sizes, refer to 3D model.
- All materials are compliant with RoHS requirements.



Unit: mm

## ● REVISION HISTORY

Revision	Description	Release Date
1.0	First release.	22 Oct 2021
1.1	<ol style="list-style-type: none"><li>Updated HAWK camera info and related 2D dimensions and product images.</li><li>Added the figure of cable connection.</li></ol>	08 Nov 2022
1.2	Updated power consumption of LI-AR0234CS-STEREO-GMSL2-30.	21 Nov 2022
1.3	<ol style="list-style-type: none"><li>Updated cable info and BOM</li><li>Added weight and specified driver version for the camera order on Page 2.</li><li>Replaced schematics with actual interface pics in "E3653-A03" section.</li></ol>	05 Dec 2023
1.4	Updated 2D of HAWK camera.	09 Apr 2024

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