LIPSense™ 3D Body Pose SDK

Datasheet v7.2.1

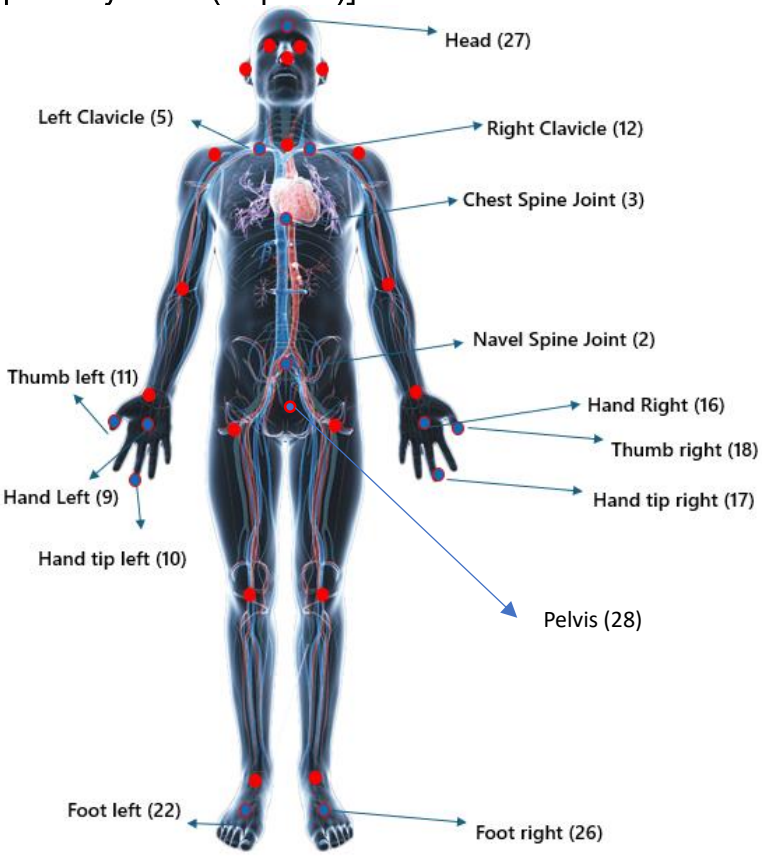
Overview

The **LIPSense™ 3D Body Pose SDK v7.2.1** is a high-performance skeletal tracking solution designed for real-time human motion analysis, fully compatible with LIPS Corporation's **LIPSedge ™ AE / DL / T series, and S315**[*Note 1] 3D depth cameras. To accommodate various application needs and system capabilities, the SDK offers 2 **detection versions:** the **Standard version** and **Professional version**.

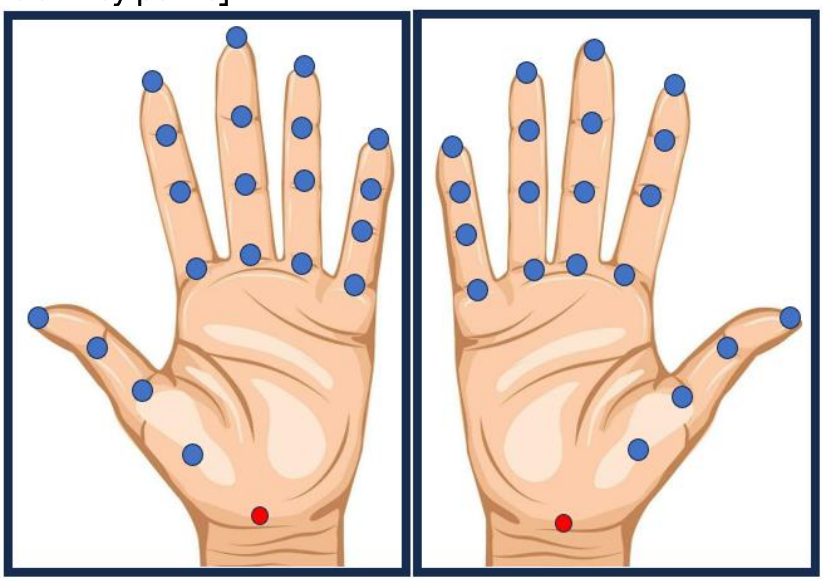
- The **Standard version** offers comprehensive full-body tracking across 32 skeletal key points without the license-based time constraint. This mode is ideal for motion capture, worker safety analytics, and immersive virtual interactions.
- The **Professional version** captures additional 40 key points across both hands—covering 4 joints per finger (including thumbs) and palm centers. It is purpose-built for gesture recognition, sign language interpretation, and precise hand-based control in VR/AR environments. In addition, **selective hand point tracking** is available within Professional version, enabling applications that require combined full-body and hand gesture analysis without overwhelming system resources. Together, these detection modes deliver scalable, high-accuracy skeletal tracking tailored for industrial, embedded, and interactive use cases.

Note: The **LIPSedge ™ S315** is supported by **Windows SDK ONLY**.

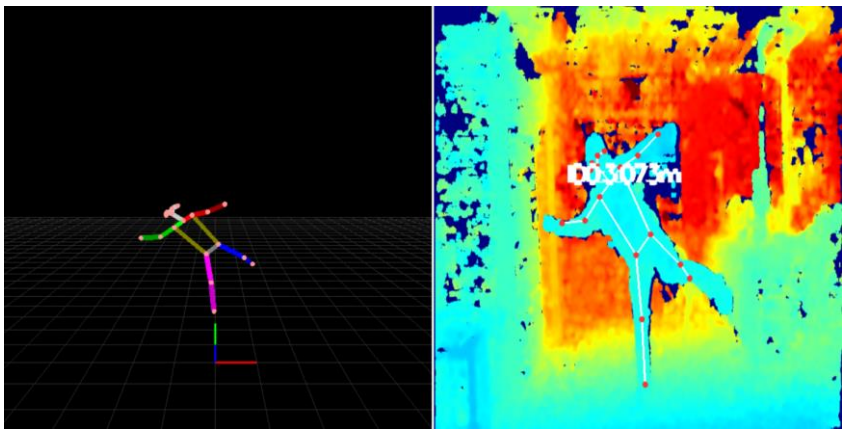
[Additional Bodypose Key Points (32 points)]



[High-precision Key points]



Integrated with advanced algorithms, the LIPSense™ 3D Body Pose SDK v7.2.1 delivers superior accuracy, cross-platform flexibility, and enhanced hardware acceleration. This integration utilizes CNN-based deep learning, unified API hardware acceleration, and optimized OpenCV code, ensuring high-performance visualization.



Features

- Full-body skeletal tracking
- Max. joint-tracking capability of 72 joints
    1. **Standard version**: 32 key points in body total, including eyes * 2, ears * 2, nose, head, neck, clavicle joints * 2, shoulders * 2, elbows * 2, wrists * 2, hands * 2, tips of the hands * 2, thumbs * 2, pelvis, chest, navel, hips * 2, knees * 2, ankles * 2, feet * 2
    2. **Professional version:** additional 40 Finger Joints including 4 joints (knuckle, Middle Joint, Upper Joint) per finger (thumbs included with the base joint added after the palm center), and palm centers for both hands.
- Precise finger tracking functionality
- People-tracking capability for up to 43 people *Note 1
- Proprietary framework for optimal pose detection performance
- Capture of swinging and staggering motions
- Support for Unity and multiple programming languages / platforms
- Support for multiple 3D camera mechanical positions (90° clockwise / 90° counterclockwise / 180°)
- Intel® OpenVINO™ compatibility for Intel® HD graphics inference engine acceleration
- NVIDIA® TensorRT compatibility for NVIDIA® graphics inference engine acceleration
- Compatibility with LIPSedge™ AE series
- Compatibility with LIPSedge™ S series (Windows Only)
- Compatibility with LIPSedge™ DL series
- Compatibility with LIPSedge™ T series
- Compatibility with NVIDIA® Jetson Xavier™ & Orin™

Note:

1. The people tracking capability for LIPSense™ 3D Body Pose SDK depends on the hardware capacity of the developer's PC / laptop. This feature describes the regular capability of LIPSense™ 3D Body Pose SDK.
2. OpenVINO™ is not compatible with NVIDIA Jetson platforms.

System Requirements

x86 based systems		
Standard version requirements	CPU	6th generation Intel Core™ processor
	RAM	8 GB RAM or above
	GPU	NVIDIA RTX 4060
	Acceleration frameworks	Intel® OpenVINO™, NVIDIA® TensorRT™, Cuda 12.x, cuDNN 9.9.0
Professional version requirements	CPU	8th generation Intel Core™ processor
	RAM	8 GB RAM or above
	GPU	NVIDIA RTX 4060 Ti
	Acceleration frameworks	Intel® OpenVINO™, NVIDIA® TensorRT™, Cuda 12.x, cuDNN 9.9.0
Arm based systems		
NVIDIA® Jetson Xavier™ / AGX Orin™		

Compatible Sensor

Series	Models
LIPSedge™	AE400 / AE430 / AE450 / AE470
	T225 / T235
	DL
	S315 (Windows Only)

Specifications

General		
	Industrial application	General application
3D sensor	LIPSedge™ AE400 / AE430/ AE450/ AE470 /	LIPSedge™ DL LIPSedge™ T225 / T235 LIPSedge™ S315 (Windows Only)
3D sensor mechanical positions	90° clockwise / 90° counterclockwise / 180°	
Environment	Indoor with sufficient illumination[2]	
Detection range	Working range: 2 – 7 m Optimal range: 3 m	
FPS	50 frames / second	
Maximum people tracking capability	Up to 43 people	
Maximum joint tracking capability	Up to 72 joints (32 key points in body total, including eyes * 2, ears * 2, nose, head, neck, clavicle joints * 2, shoulders * 2, elbows * 2, wrists * 2, hands * 2, tips of the hands * 2, thumbs * 2, pelvis, chest, navel, hips * 2, knees * 2, ankles * 2, feet * 2 / palm * 40)	
Software		
Operating system	Windows 11 / Ubuntu 22.04 LTS/ Ubuntu 24.04 LTS/ Jetpack 6.1/ Jetpack 6.2	
Programming languages	C / C++ / Python / Unity / C#	

Notes:

1. All specifications are subject to change without prior notice.
2. The illumination settings for each 3D sensor varies. Refer to the sensor's official documents for details on illumination settings.

Compatibility Table

Windows 11	Ubuntu 22.04 / 24.04 LTS	Jetpack 6.1 / 6.2
LIPSedge™ AE400 / AE430 / AE450 / AE470 LIPSedge™ T225 / T235 LIPSedge™ DL LIPSedge™ S315	LIPSedge™ AE400 / AE430 / AE450 / AE470 LIPSedge™ T225 / T235 LIPSedge™ DL	

Notes: The functionality of the Unity engine varies based on the computer's operating system; both Linux and Windows systems have been confirmed to be compatible.