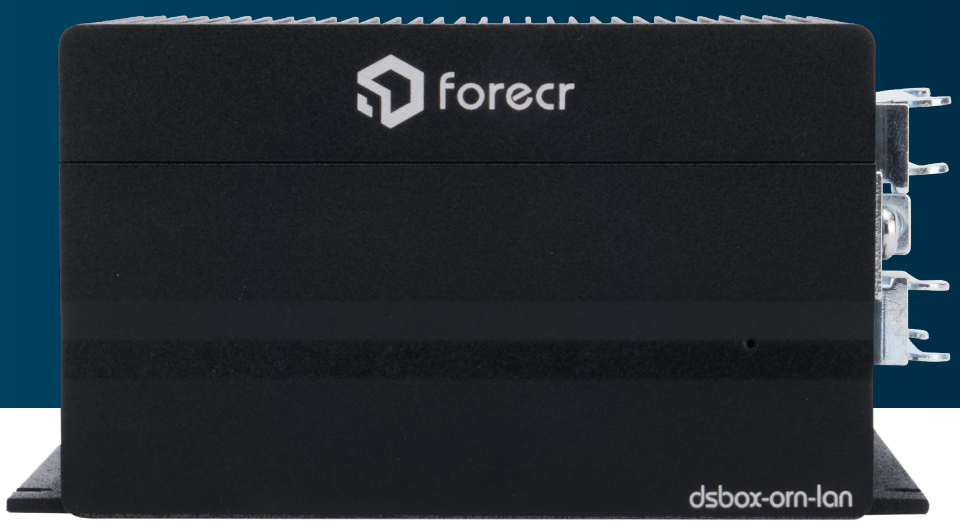
forecr




DSBOX ORN-LAN

# USER MANUAL

UM-DSBXORN-LAN-01
Revision 1.0
12/07/2025

Forecr
https://www.forecr.io
support@forecr.io

NVIDIA Preferred Partner

# Table of Contents

# Preface

## Disclaimer

Forecr emphasizes that the information contained in this user manual is continuously updated in line with the technical modifications and enhancements made by Forecr to its DSBOX-ORNLAN. Therefore, this manual only represents the technical status of Forecr DSBOX-ORNLAN at the time of publishing.

Forecr shall not be held responsible for any damages that may occur directly or indirectly as a result of any technical or typographical errors or omissions found in this document or for any discrepancies between the product and the user's manual.

## Customer Support

In case you encounter any challenges after reading the user manual and/or using the DSBOX-ORNLAN, please reach out to the Forecr reseller from which you purchased the DSBOX-ORNLAN.

See the contact information section below for more information on how to contact us directly.

## Contact Information

| | |
|---|---|
| E-mail Address | For information requests:<br>info@forecr.io<br><br>For support requests:<br>support@forecr.io<br><br>For wholesale inquiries:<br>sales@forecr.io |
| Address | Forecr OÜ<br>Akadeemia tee 21/1 (II floor), Room 219, 12618, Tallinn, Estonia |
| Telephone Number | Estonia +372 5332 2632 |
| Website | https://www.forecr.io |

## Copyright Notice



## Trademark Acknowledgment

Forecr recognizes and acknowledges that all trademarks, registered trademarks, and/or copyrights mentioned in this user manual belong to their respective owners. All possible trademarks or copyright acknowledgments that are not listed herein do not mean a lack of acknowledgment to the rightful owners of mentioned trademarks and copyrights. Forecr acknowledge the rights of the trademark owners and respect their intellectual property.

## Limited Product Warranty

Forecr provides a 1-year Warranty for the DSBOX-ORNLAN. This warranty period is valid from the original purchase date of the DSBOX-ORNLAN. In order to maintain warranty, the DSBOX-ORNLAN must not be altered or modified in any way. Changes or modifications to the DSBOX-ORNLAN, that are not explicitly approved by Forecr and described in this user manual or received from Forecr Support as a special handling instruction, will void your warranty.
To receive warranty service, the DSBOX-ORNLAN must be delivered to Forecr within the warranty period together with the original invoice or proof of purchase.

## Revision History

| Revision No | Revision Date | Revision Description |
|---|---|---|
| rev 1.0 | 12.07.2025 | Preliminary Release |

# 1. Introduction

DSBOX-ORN-LAN is a powerful and reliable industrial computing device with dual LAN connectivity, suitable for industrial applications that require high processing power and ruggedness, such as autonomous driving, robotics, and intelligent video analytics. Built around the NVIDIA Orin SoC, featuring NVIDIA Ampere™ GPU architecture with 64-bit operating capability, it provides. The processing power required for complex industrial applications such as autonomous driving, robotics, and intelligent video analytics.

DSBOX-ORN-LAN has a rugged and compact design optimized for industrial environments. It is built with an aluminum chassis that provides excellent heat dissipation and protection against dust, shock, and vibration. The device features a wide operating temperature range and a wide input voltage range to ensure reliable operation in harsh industrial environments.

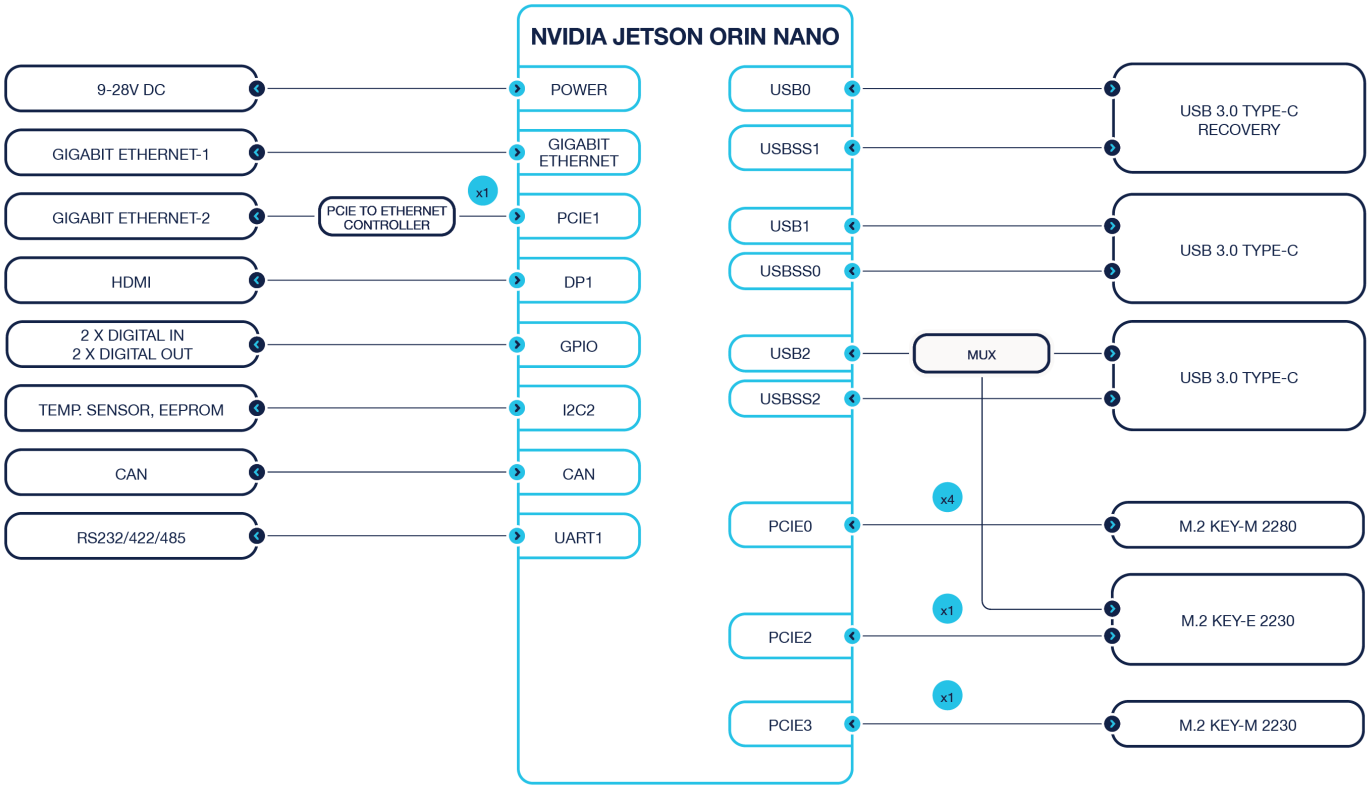
Latest revision of this user manual, datasheet, and 3D model can be downloaded from Forecr Web Page.

# 2. Product Specification

## 2.1 Technical Specification

| | |
|---|---|
| **Supported Modules** | NVIDIA Jetson Orin Nano 4GB / 8GB |
| **Memory** | 4 GB 64-bit LPDDR5 / 8 GB 128 bit LPDDR5 |
| **Graphics Interfaces** | 1x HDMI 2.0(max resolution 3840x2160) |
| **Interfaces** | 2x Gigabit Ethernet<br>3x USB 3.1 Type-C<br>1x CAN Bus<br>1x RS232 & 1x RS422<br>2x Digital Input,<br>2x Digital Output |
| **Wireless Communication** | WiFi/Bluetooth Connectivity by extension sockets |
| **Power Supply** | 9-28 VDC |
| **Extension Sockets** | 1x M.2 Key-E |
| **Mass Storage** | 2x M.2 Key-M SSD Slot |
| **Ambient Conditions** | -25°C ... +85°C |
| **Form Factor / Dimensions** | 110 mm x 130 mm x 67 mm, 765gr |
| **Operating Systems** | Ubuntu Linux 20.04 / 22.04 |
| **JetPack Support** | JetPack 5.x / 6.x |

## 2.2 Block Diagram



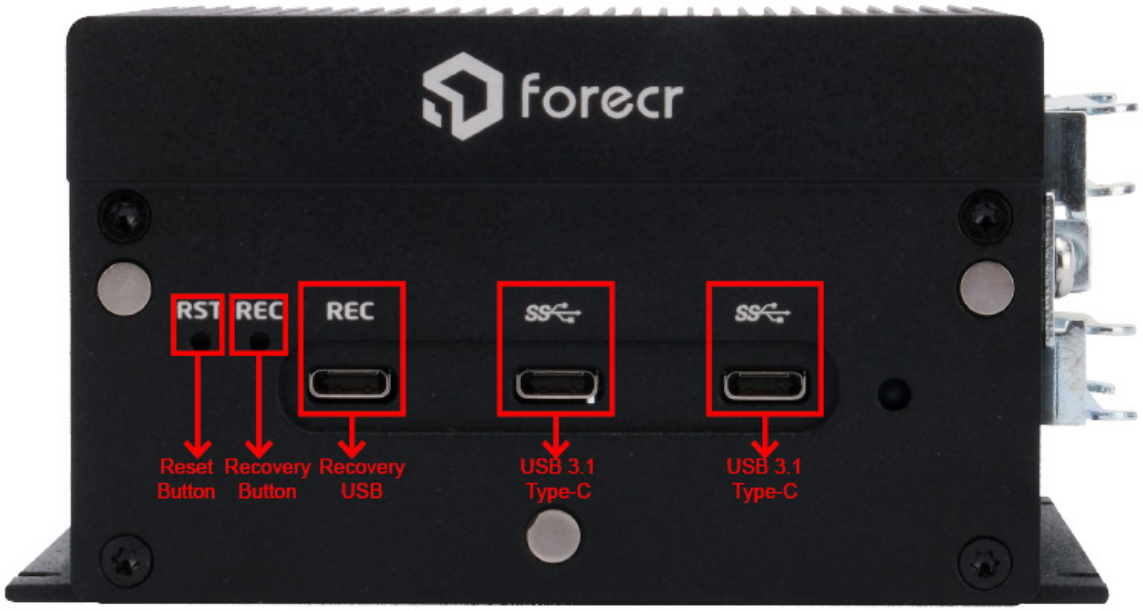

## 2.3 DSBOX ORN-LAN Visuals



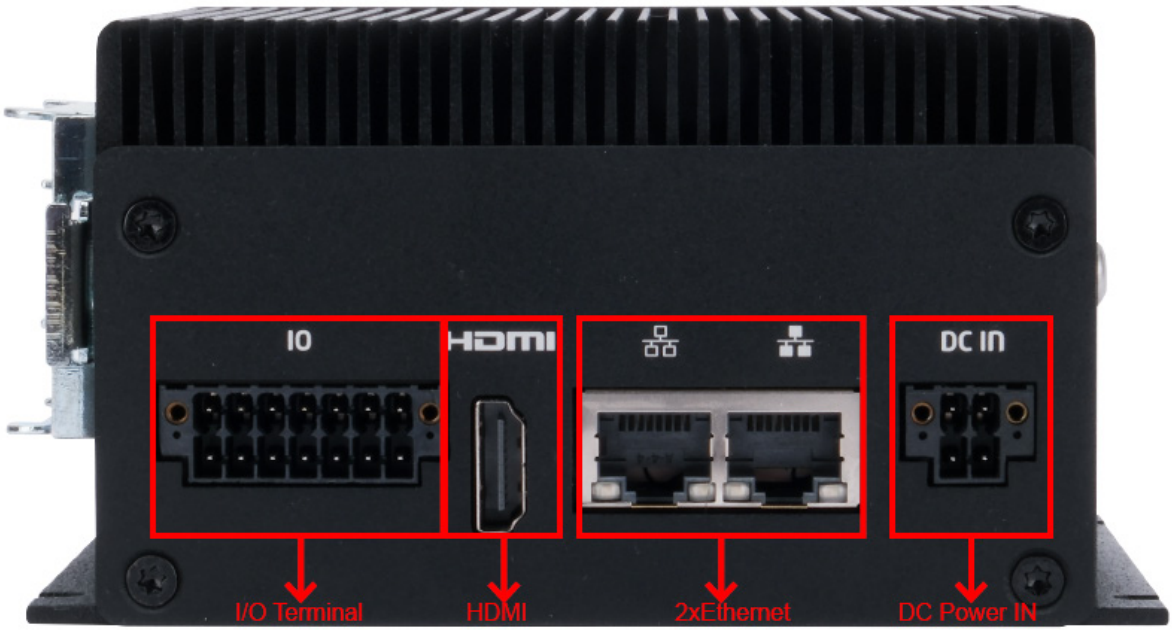

# 3. Hardware Information

## 3.1 Connector Location

### 3.1.1 Front Connectors Layout




### 3.1.2 Rear Connectors Layout

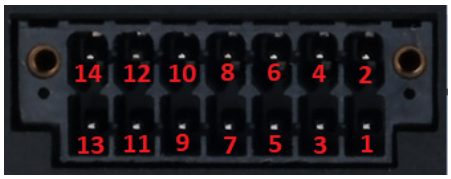


## 3.2 List of Connectors and Buttons

| Connectors |
|---|
| DSBOX-ORN-LAN I/O Terminal Connector |
| DSBOX-ORN-LAN HDMI Conector |
| DSBOX-ORN-LAN Gigabit Ethernet Connector |
| DSBOX-ORN-LAN Power Connector |
| DSBOX-ORN-LAN USB 3.1 Type-C Connectors |
| DSBOX-ORN-LAN Recovery Mode USB 3.1 Type-C Connector |
| DSBOX-ORN-LAN Reset Pushbutton |
| DSBOX-ORN-LAN Recovery Pushbutton |

## 3.3 The Definition of Each Connector

### 3.3.1 I/O Terminal Connector

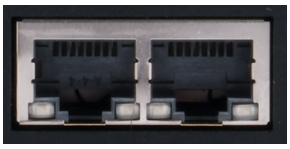



| Function | Description | | |
|---|---|---|---|
| Mating connector | 1790344 (DFMC 1,5/ 7-STF-3,5) from Phoenix Contact. | | |
| Pinout | **Pin** | **Description** | **I/O Type** |
| | 1 | RS422 B | I/O |
| | 2 | RS422 Y / RS485 A | I/O |
| | 3 | RS232 RX / RS422 A | I/O |
| | 4 | RS232 TX / RS422 Z / RS485 B | I/O |
| | 5 | CAN_H | I/O |
| | 6 | GROUND | Power |
| | 7 | CAN_L | I/O |
| | 8 | GROUND | Power |
| | 9 | GROUND | Power |
| | 10 | GROUND | Power |
| | 11 | DIGITAL_OUT1<br>Note: Up to 24V, low-side switch mechanism | Output |
| | 12 | DIGITAL_IN1<br>Note: High at 11-24V | Input |
| | 13 | DIGITAL_OUT0<br>Note: Up to 24V, low-side switch mechanism | Output |
| | 14 | DIGITAL_IN0<br>Note: High at 11-24V | Input |

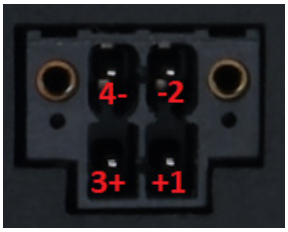
### 3.3.2 HDMI Connector

| | Description |
|---|---|
|  | The NVIDIA® Jetson Orin Nano module will output video via vertical HDMI connector that is HDMI 2.0 capable. |

### 3.3.3 Gigabit Ethernet Connector

| | Description |
|---|---|
|  | There are 2 port RJ-45 ethernet connector for network communi-cation. |

### 3.3.4 Power Connector




| Function | Description | |
|---|---|---|
| Mating Connector | 1708595 | |
| Minimum Input Voltage | +9V | |
| Maximum Input Voltage | +28V | |
| Pinout | **Pin** | **Description** |
| | 1 | Positive |
| | 2 | Negative |
| | 3 | Positive |
| | 4 | Negative |

### 3.3.5 USB 3.1 Type-C Connectors

| | Description |
|---|---|
|  | There are 3 USB 3.1 Type-C connectors with a 1.5A current limit per connector. |

### 3.3.6 Recovery Mode USB 3.1 Type-C Connector

| | Description |
|---|---|
|  | It is used to allow to install or upgrade the operating system. |

### 3.3.7 Reset Pushbutton

| | Description |
|---|---|
|  | Reset button is used to reset the Jetson SoM. |

### 3.3.8 Recovery Pushbutton

| | Description |
|---|---|
|  | Recovery button should be pressed with reset button at the same time. After released reset button, recovery button should be pressed a little bit more (min. 250 ms). |

# 4. Software Information

## 4.1 Installation

JetPack-5.x Installation can be found here: https://www.forecr.io/blogs/installation/jetpack-5-x-installation-for-dsboard-ornx-lan

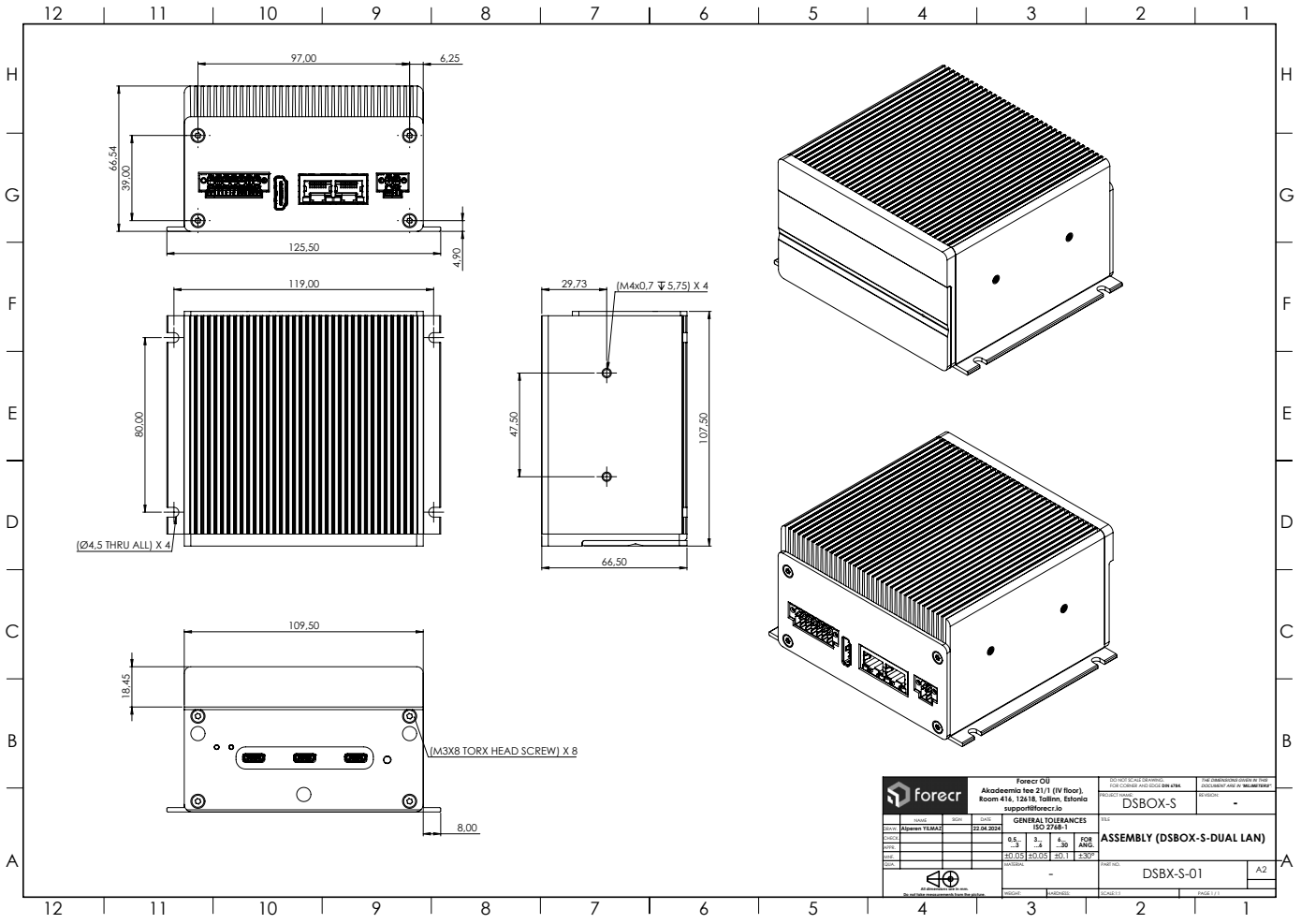
JetPack-6.x Installation can be found here: https://www.forecr.io/blogs/installation/jetpack-6-x-installation-for-dsboard-ornx-lan

# 5. Mechanical Models & Drawings

## 5.1 3D Model

Full 3D models of all DSBOX-ORN-LAN can be found here: https://github.com/forecr/forecr_3d_models/tree/master/DSBOX-ORN-LAN

## 5.2 2D Mechanical Drawing



# 6. Power Consumption

## 6.1 Orin Nano 8GB

Power Supply: 12V-5A

All CPU and GPU cores are %100 loaded.

| | Power Up Sequence | Idle | Standby (Suspend mode) | 7W (4 core) | 15W (6 core) |
|---|---|---|---|---|---|
| Current (A) | 1,2 | 0,7 | 0,09 | 1,21 | 1,7 |
| Power (W) | 14,4 | 8,4 | 1,08 | 14,52 | 20,4 |

## 6.2 Orin Nano 4GB

Power Supply: 12V-5A

All CPU and GPU cores are %100 loaded.

| | Power Up Sequence | Idle | Standby (Suspend mode) | 7W_CPU (4 core) | 7W_AI (4 core) | 10W (6 core) |
|---|---|---|---|---|---|---|
| Current (A) | 1,1 | 0,58 | 0,11 | 1,03 | 1,1 | 1,19 |
| Power (W) | 13,2 | 6,96 | 1,32 | 12,36 | 13,2 | 14,28 |

# 7. Cables

This section will be completed soon. It will be published on our website once completed. Please check our Forecr Web Page regularly.

# 8. MTBF Prediction

This section will be completed soon. It will be published on our website once completed. Please check our Forecr Web Page regularly.

# 9. Ordering Information