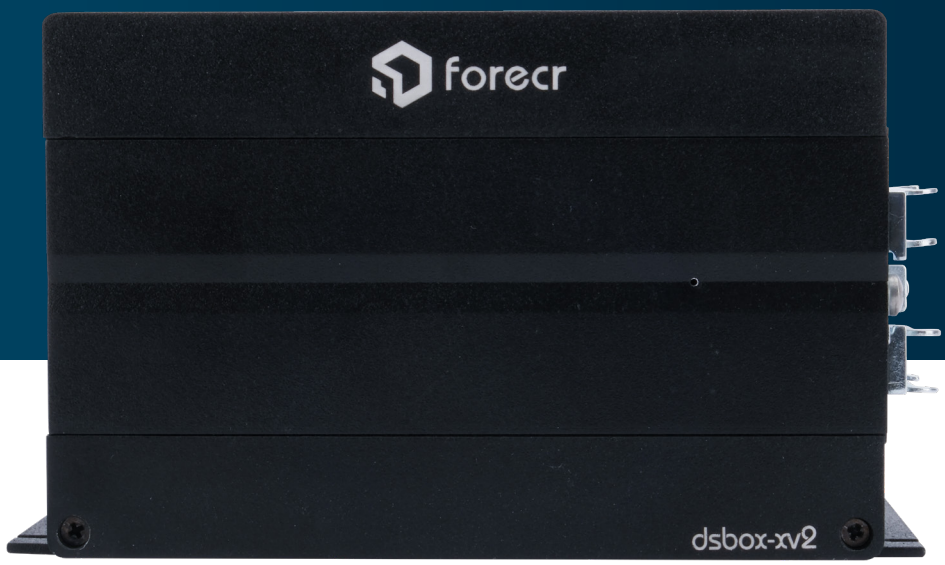

DSBOX XV2

USER MANUAL

UM-DSBXXV2-01
Revision 1.0
07/10/2024

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

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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-XV2. Therefore, this manual only represents the technical status of Forecr DSBOX-XV2 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-XV2, please reach out to the Forecr reseller from which you purchased the DSBOX-XV2.

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

Contact Information

E-mail Address	For information requests: info@forecr.io For support requests: support@forecr.io For wholesale inquiries: sales@forecr.io
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Telephone Number	Estonia +372 5332 2632
Website	https://www.forecr.io

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Limited Product Warranty

Forecr provides a 1-year Warranty for the DSBOX-XV2. This warranty period is valid from the original purchase date of the DSBOX-XV2. In order to maintain warranty, the DSBOX-XV2 must not be altered or modified in any way. Changes or modifications to the DSBOX-XV2, 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-XV2 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	07.10.2024	Preliminary Release

1. Introduction

DSBOX-XV2 is a powerful edge computing device designed for industrial applications that require high processing power and reliability. It is powered by the NVIDIA Jetson AGX Xavier module, which features an NVIDIA Volta GPU with 512 CUDA cores and an eight-core ARM64 CPU. This provides DSBOX-XV2 the processing power required for complex industrial applications such as machine learning, computer vision, and AI.

The DSBOX-XV2 features a rugged and compact design optimized for harsh industrial environments. It is built with an aluminum chassis that provides excellent heat dissipation and protection against dust, shock, and vibration. It also has a wide operating temperature range (-25°C to 85°C) and a wide input voltage range (18V to 30V) to ensure reliable operation in various industrial environments. DSBOX-XV2 is a powerful and reliable edge computing device that is well-suited for industrial applications that require high processing power and ruggedness. Its combination of powerful hardware and software development tools makes it a versatile solution for a wide range of industrial applications.

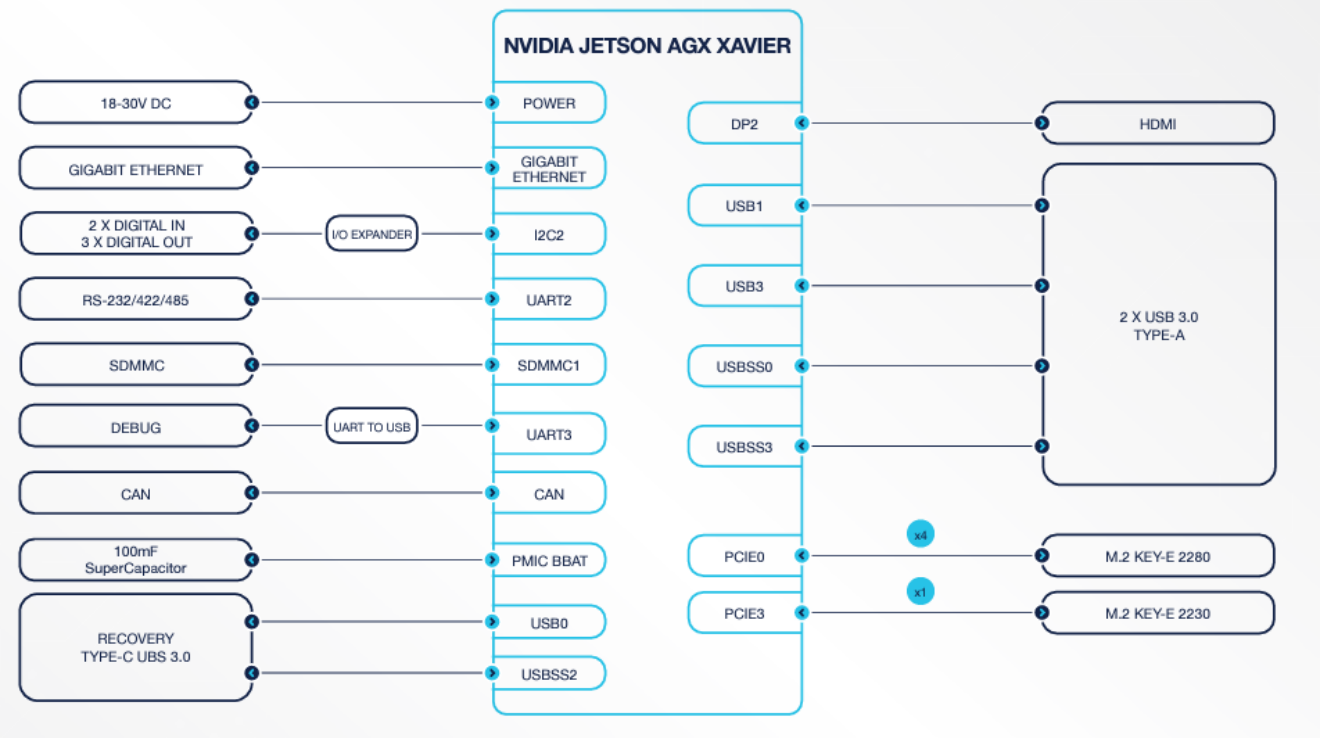
Latest revision of this user manual, datasheet, and 3D model can be downloaded from Forecr Web Page.

2. Product Specification

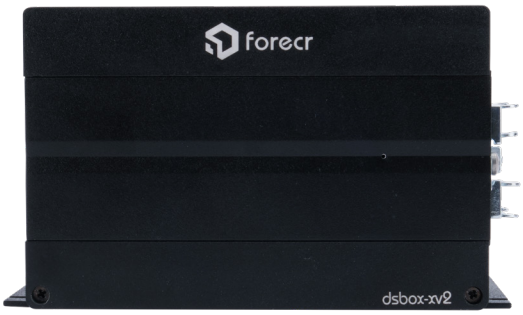
2.1 Technical Specification

Supported Modules	NVIDIA Jetson AGX Xavier 32GB NVIDIA Jetson AGX Xavier 64GB NVIDIA Jetson AGX Xavier Industrial 32GB
Memory	32 / 64 GB 256-bit LPDDR4x
Graphics Interfaces	1x HDMI 2.0(max resolution 3840x2160)
Interfaces	1x Gigabit Ethernet 2x USB 3.1 Type-A 1x CAN Bus 1x RS232/422/485 (software configurable) 2x Type-C (Debug/Recovery) 2x Digital Input 3x Digital Output
Wireless Communication	WiFi/Bluetooth Connectivity by extension sockets
Power Supply	18-30 VDC
Extension Sockets	1x M.2 Key-E, 1x MicroSD
Mass Storage	32 / 64 GB eMMC 5.1 Flash 1x M.2 Key-M SSD Slot
Ambient Conditions	-25°C ... +85°C
Form Factor / Dimensions	160 mm x 110 X 95 mm 1340gr
Operating Systems	Ubuntu Linux 18.04 Ubuntu Linux 20.04
JetPack Support	JetPack 4.x JetPack 5.x

2.2 Block Diagram



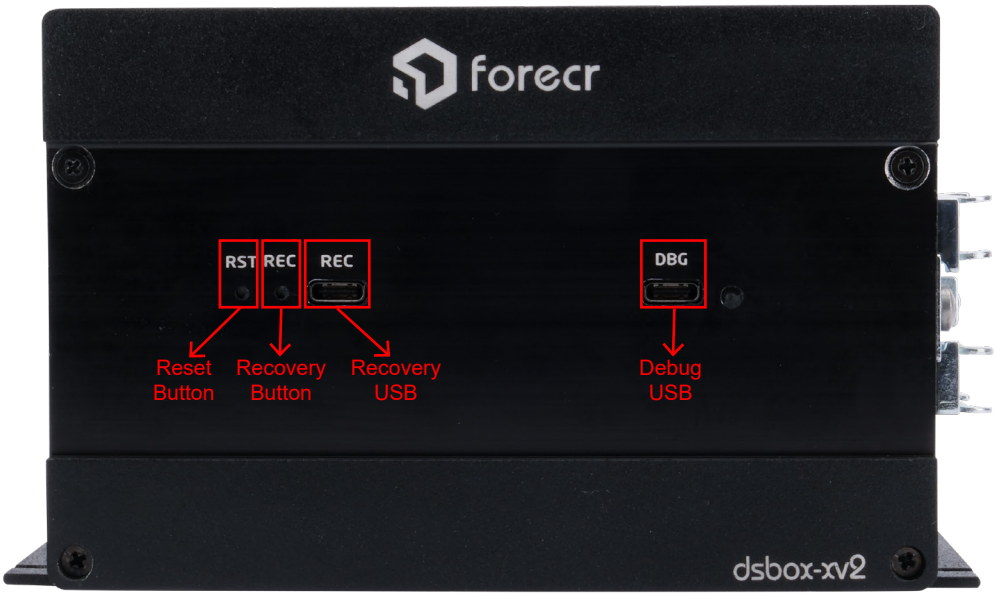
2.3 DSBOX-XV2 Visuals



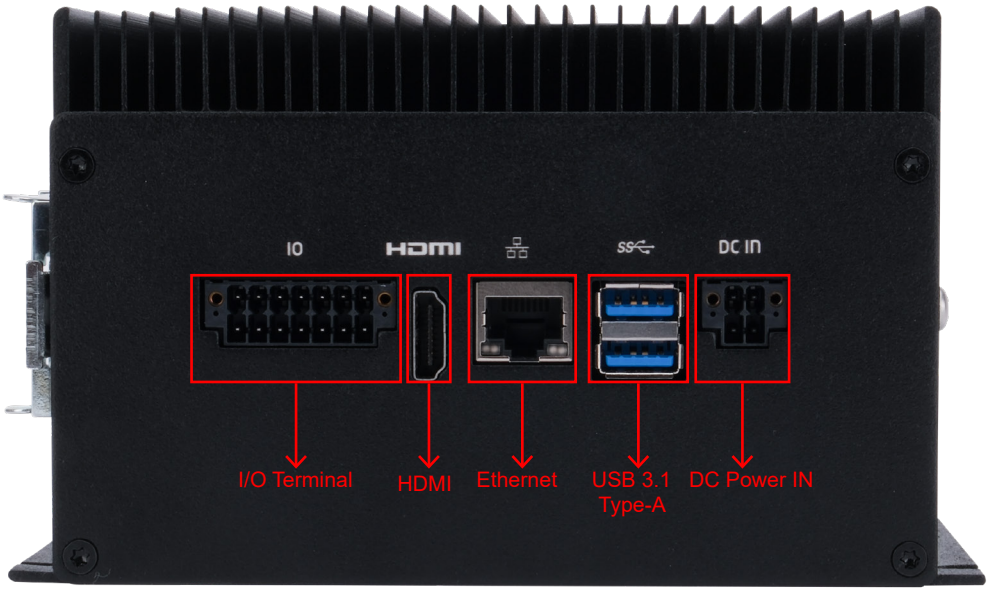
3. Hardware Information

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-XV2 I/O Terminal Connector
DSBOX-XV2 HDMI Conector
DSBOX-XV2 10/100/1000 Ethernet Connector
DSBOX-XV2 USB 3.1 Type-A Connector
DSBOX-XV2 Power Connector
DSBOX-XV2 Recovery Mode USB 3.1 Type-C Connector
DSBOX-XV2 Debug Mode USB 3.1 Type-C Connector
DSBOX-XV2 Reset Pushbutton
DSBOX-XV2 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 / RS 422 Z / RS485 B	I/O
	5	CAN_H	I/O
	6	GROUND	Power
	7	CAN_L	I/O
	8	GROUND	Power
	9	DIGITAL_OUT2 Note: Up to 24V,1A max, low-side switch	Output
	10	GROUND	Power
	11	DIGITAL_OUT1 Note: Up to 24V,1A max, low-side switch	Output
	12	DIGITAL_IN1	Input
	13	DIGITAL_OUT0 Note: Up to 24V,1A max, low-side switch	Output
	14	DIGITAL_IN0	Input

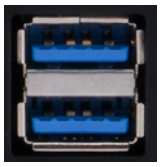
3.3.2 HDMI Connector

	Description
	The NVIDIA® Jetson AGX Xavier modules will output video via vertical HDMI connector that is HDMI 2.0 capable.

3.3.3 10/100/1000 Gigabit Ethernet Connector

	Description
	The DSBOX-XV2 implements RJ-45 ethernet connector for internet communication. RJ-45 connector is connected directly to the NVIDIA Jetson module.

3.3.4 USB 3.1 Type-A Connector

	Description
	The DSBOX-XV2 incorporates 2 USB 3.1 Type-A connectors with a 2A current limit per connector.

3.3.5 Power Connector

Function	Description	
Mating Connector	1708595	
Minimum Input Voltage	+18V	
Maximum Input Voltage	+30V	
Pinout	**Pin**	**Description**
	1	Positive
	2	Positive
	3	Negative
	4	Negative

3.3.6 Recovery Mode USB 3.1 Type-C Connector

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

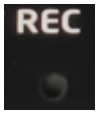
3.3.7 Debug Mode USB 3.1 Type-C Connector

	Description
	It is used to access the module by using serial connection.

3.3.8 Reset Pushbutton

	Description
	Reset button is used to reset the Jetson SoM.

3.3.9 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-4.x Installation can be found here: https://www.forecr.io/blogs/installation/jetpack-4-x-installation-for-dsboard-xv2

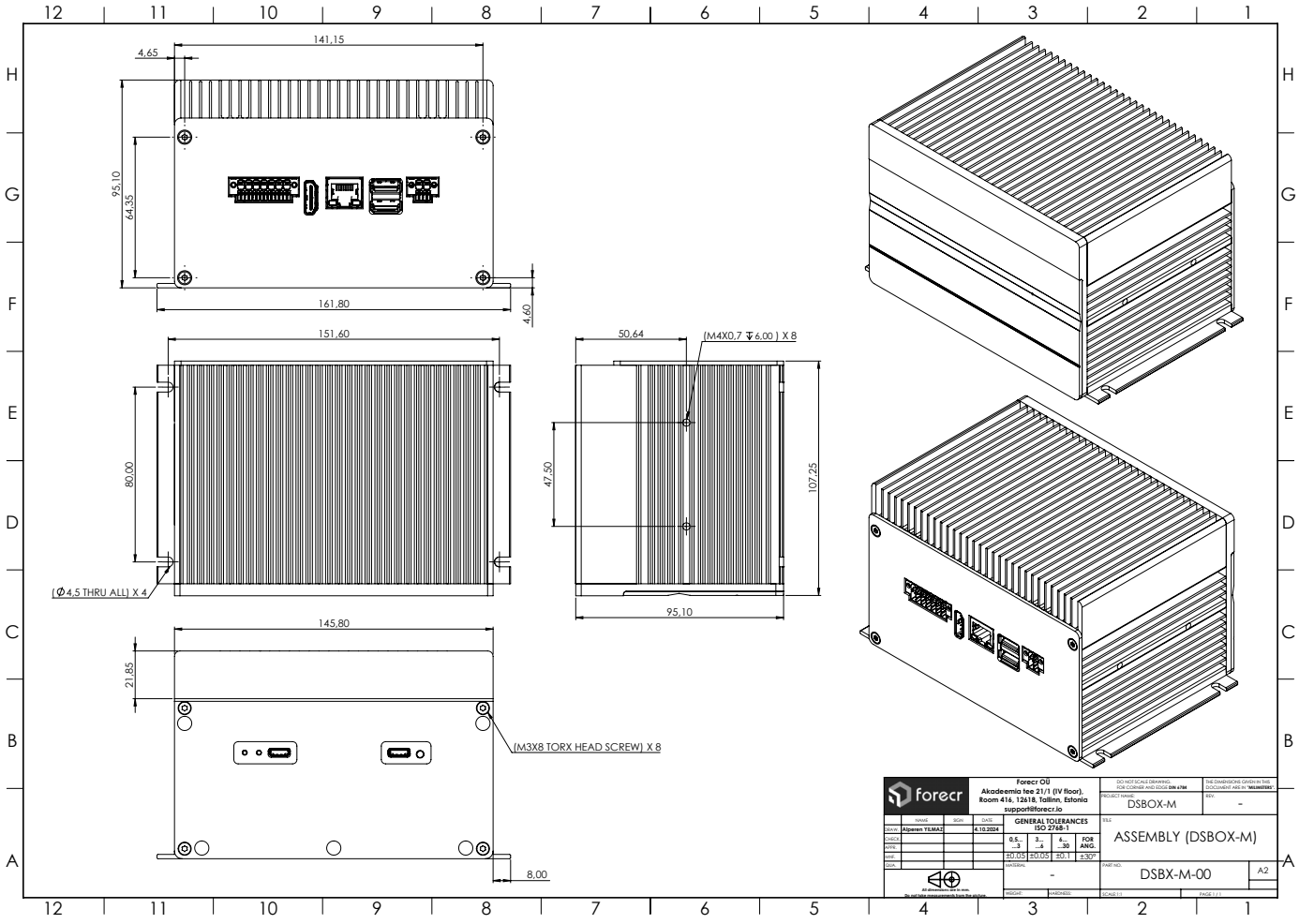
JetPack-5.x Installation can be found here: https://www.forecr.io/blogs/installation/jetpack-5-x-installation-for-dsboard-xv2

5. 3D Model & Mechanical Information

5.1 3D Model

Full 3D models of all DSBOX-XV2 can be found here: https://github.com/forecr/forecr_3d_models/tree/master/DS-BOX-XV2

5.2 2D Mechanical Drawing



6. Power Consumption

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

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