

Artificial Intelligence

Edge Computer

WB-N211 User's Manual



APPLICATION

1. Surveillance
2. Law enforcement
3. Hospitality
4. Logistics
5. Retail
6. Agriculture
7. Transportation
8. Smart city
9. Financial / Banking
10. Healthcare

Title	WiBASE TRAVIS User Manual
-------	------------------------------

Document Version	Ver. 0.10
------------------	-----------

OS Version	Linux Ubuntu 16.04
------------	-----------------------

BSP Version	0.8.5V & Above
-------------	----------------

Jetpack Version	3.2.1
-----------------	-------

L4T Version	R28.2.1
-------------	---------

WB-N211 HW	A1 @ CRB
------------	----------

Table of Contents

1	Preface	3
2	Revision History.....	4
3	Introduction	5
4	Product Overview.....	6
4.1	Product Outlook	6
4.2	Mechanical Overview	6
4.2.1	Mechanical Dimentions.....	6
4.3	Product I/O Definition	7
4.3.1	Front Side	7
4.3.2	Rear Side.....	7
4.3.3	Right Side.....	8
4.4	Preparation.....	9
4.5	Operation Instructions.....	9
4.6	Product Mainance and Disposal	9
4.7	Safety Information.....	10
4.7.1	Avoid creation of dust.....	10
4.7.2	DO NOT Dissembly	10
4.8	Product Specification.....	11
5	NVIDIA Jetson TX2 Software	13
6	Quick Start with WB-N211 Software.....	13
7	Accessories.....	13
7.1	Accessory List.....	13

1 Preface

Copyright © 2018 WiBASE Industrial Solutions Inc. All Rights Reserved.

Our report is provided solely for the benefit of the users and should not be copied, quoted or referred to in whole or in part without our prior written consent. WiBASE Industrial Solutions Inc. (WiBASE) will not be liable to any other party to whom our report may be shown or who may acquire a copy of our report.

Products and corporate names mentioned in this manual may or may not be registered trademarks or copyrights of their respective companies, and are used for identification purposes only. All trademarks are the property of their respective owners.

Every effort has been made to ensure that the contents of this manual are correct and up to date. However, the information in this document is subject to change without notice and should not be construed as a commitment by WiBASE. WiBASE assumes no responsibility for any errors that may appear in this document.

CONFIDENTIAL

2 Revision History

Revision	Date	Changes
0.1	2019/8/01	Initial Release

CONFIDENTIAL

3 Introduction

We create an energy-efficient AI supercomputer, Jetson TX2, for such intelligent IoT devices in different vertical industries, such as smart cities, law enforcement, mass transit, health care and even smart factories. Industries drives large-scale industrial and societal change. As computing evolves, new companies form, new products are built, our lives change. Looking back at the past couple of waves of computing, each was underpinned by a revolutionary computing model, a new architecture that expanded both the capabilities and reach of computing. By leveraging Jetson TX2 powerful platform, operating at less than 15 W of power outperforms the CPU operating at nearly 200W. WiBASE offer an end-to-end AI computing platform — from GPU to deep learning software and algorithms, from training systems to AI computers, from cloud to data center to edge device – “WB-N211”. WiBASE & NVIDIA are striving to foster WB-N211 AI computing platform helpful everywhere.

WB-N211 integrated NVIDIA Jetson TX2 module which provide 256 CUDA cores, high performance and powerful user experience. System OS is based on Linux Ubuntu and integrated NVIDIA JetPack & Deep Stream SDK, so user can base on this platform to develop their own applications with WB-N211, and create Intelligent Video Analytics (IVA) in variety of user scenarios, even if real time object recognition also can be implement with WB-N211.

To create a better feasibility for users on WB-N211, the User Manual contains all essential information for users to make full use of this system. This manual includes a description of the system functions and capabilities, contingencies and alternate modes of operation, and step-by-step procedures for system access and use. Please kindly notice this manual is only for generic user scenarios, for special used case, please kindly contact us for further consult.

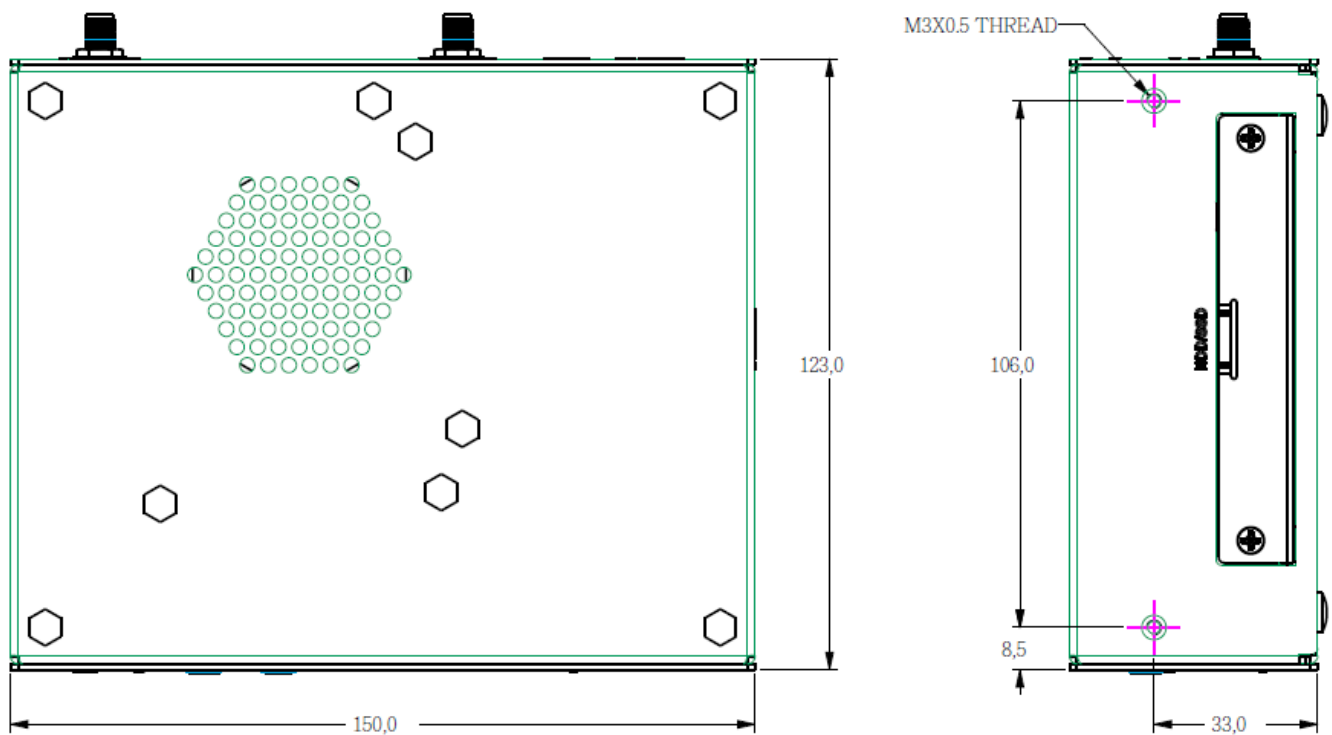
4 Product Overview

4.1 Product Outlook



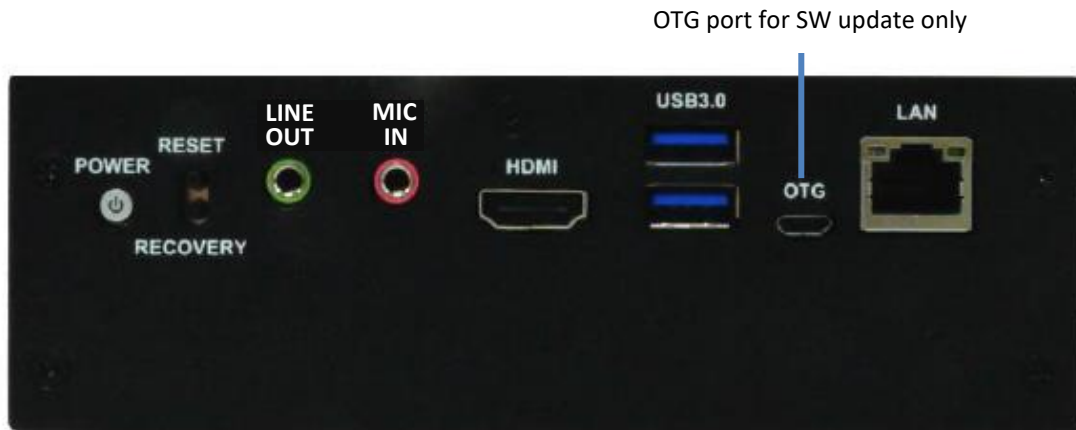
4.2 Mechanical Overview

4.2.1 Mechanical Dimensions

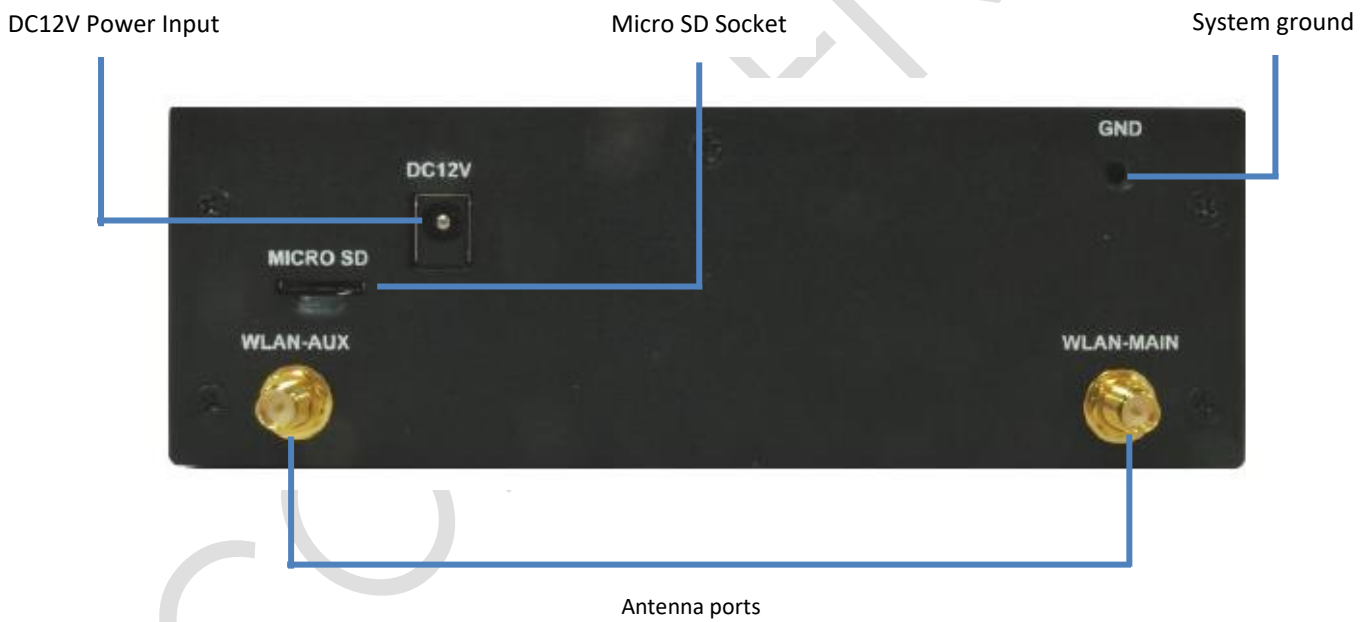


4.3 Product I/O Definition

4.3.1 Front Side

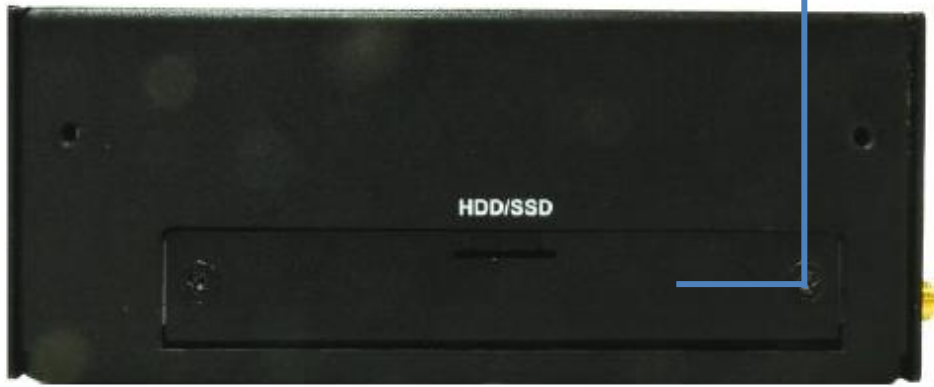


4.3.2 Rear Side



4.3.3 Right Side

Removeable 2.5inch SATA HDD/SSD Tray



CONFIDENTIAL

4.4 Preparation

- Read and follow all instructions in the documentation before you operate your system.
- Do not place this product on an unstable cart, stand, or table. The product may drop, or cause severe damage.
- This system should be operated from the type of power indicated on the marking label. Please double check the power supply voltage within product spec before connect WB-N211.
- **Under Linux Ubuntu's system limitation, please reserve at least 1GB to make sure WB-N211 could power on successfully.**
- **Micro USB OTG connector is used for software updating only. Please DO NOT plug in OTG cable or connect to any USB host during normal operation. This will cause other USB function being disabled.**

4.5 Operation Instructions

- Connect the power to WB-N211. Please follow pin define for power connect instruction.
- Connect the USB mouse/keyboard to WB-N211
- Press the POWER key to power on WB-N211.
- After that, you shall be able to have Ubuntu running on WB-N211.

4.6 Product Mainance and Disposal

- Unplug appliances when not in use to save energy and minimize the risk of shock and fire
- Storage and Disposal in dry locations. Dispose of as ordinary dry waste per local, state, and federal regulations. However, may not be recyclable in certain areas due to availability of community recycling programs.

4.7 Safety Information

WB-N211 is designed and tested to meet the latest standards of safety for information technology equipment. However, to ensure your safety, it is important that you read the following safety instructions.

4.7.1 Avoid creation of dust.

- Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
- Avoid heat, flames, sparks, and other sources of ignition.
- Converting operations may form combustible dust concentrations in air.
- Minimize any dust accumulation from converting operations.
- Use good industrial hygiene and housekeeping practices to minimize any dust accumulation.

4.7.2 DO NOT Disassembly

- Please DO NOT disassemble the sample. WiBASE provide options of LTE, BT/WiFi and SSD cards, however, these functions have to be assembled in WiBASE factory.

CONFIDENTIAL

4.8 Product Specification

System	
Module	nVidia Jetson TX2 module
CPU	HMP Dual Denver 2/2 MB L2 +, Quad ARM® A57/2 MB L2
GPU	NVIDIA Pascal™ 256 CUDA core GPU
DRAM	On Board 8GB LPDDR4
BSP Storage	On-Board 32GB eMMC (eMMC5.1) for BSP
I/O	
Network (LAN)	1x Gigabit Ethernet (10/100/1000), RJ45 w/ LED
Display	1x HDMI (Type A)
Audio	1x 3.5mm phone jack for line-out 1x 3.5mm phone jack for MIC line in, audio plug detect
OTG	1x Micro USB
USB	2x USB 3.0 type-A (compatible to USB2.0)
WiFi/BT	802.11a/b/g/n/ac + BT4.0 (Option)
Storage	
Micro SD	1x Micro SD card slot for SDXC SD Card
SATA	1x tray for 2.5" Removable HDD/SSD
Button	
Power	1x Power button
Reset	1x Reset button
Recover	1x Recovery button
Miscellaneous	
Power on	3 PIN Jump switch for system turn on by button or automatic
OS Support	
OS Support	Linux 4.4.38 / ubuntu 16.04
Power Consumption	
Input Voltage	DC12V +/-10%
Consumption	42 watt (max.) w/o daughter boards
Environment	
Operating Temperature	※-20 ~ 70 °C (system only not include storage) ※Customer using HDD/SSD storage please be sure the storage working temperature can meet requirement
Storage Temperature	-30 ~ 80 °C (-22 ~ 176 °F)
Relative Humidity	5 ~ 95% non-Condensing
EMC	CE, FCC Class B (TBD)
Physical	

Dimensions	150mm x 123mm x 50mm
Characteristics	
Weight	1.1kg (w/o SSD/HDD)

CONFIDENTIAL

5 NVIDIA Jetson TX2 Software

- WB-N211 comes preloaded with an L4T (Linux for Tegra) environment, which includes support for many common APIs, and is supported by NVIDIA's complete development tool chain, L4T R28.2.1.

NVIDIA JetPack 3.2.1 Release Notes:

https://developer.nvidia.com/embedded/jetpack-3_2_1

Please refer to NVIDIA's official L4T R28.2.1 webpage link for full details:

<https://developer.nvidia.com/embedded/linux-tegra-r2821>

You could refer to the following link to search "L4T Multimedia API Reference" to understand the multimedia related functions:

<https://developer.nvidia.com/embedded/downloads>

6 Quick Start with WB-N211 Software

- How to check the SW Version?
[nvidia@tegra-ubuntu:~\\$./WiBASE.sh](mailto:nvidia@tegra-ubuntu:~$./WiBASE.sh)
- How to do the SW update?
Once the new SW is released, we will upload to our FTP with the SOP to do the manual SW update.
- How to do the SW development on WB-N211?
Please refer to our "WB-N211 Software Porting Guide" to understand the necessary information for your coding.

7 Accessories

7.1 Accessory List

Item	Description
Adaptor	60W
Power Cord	Type B plug