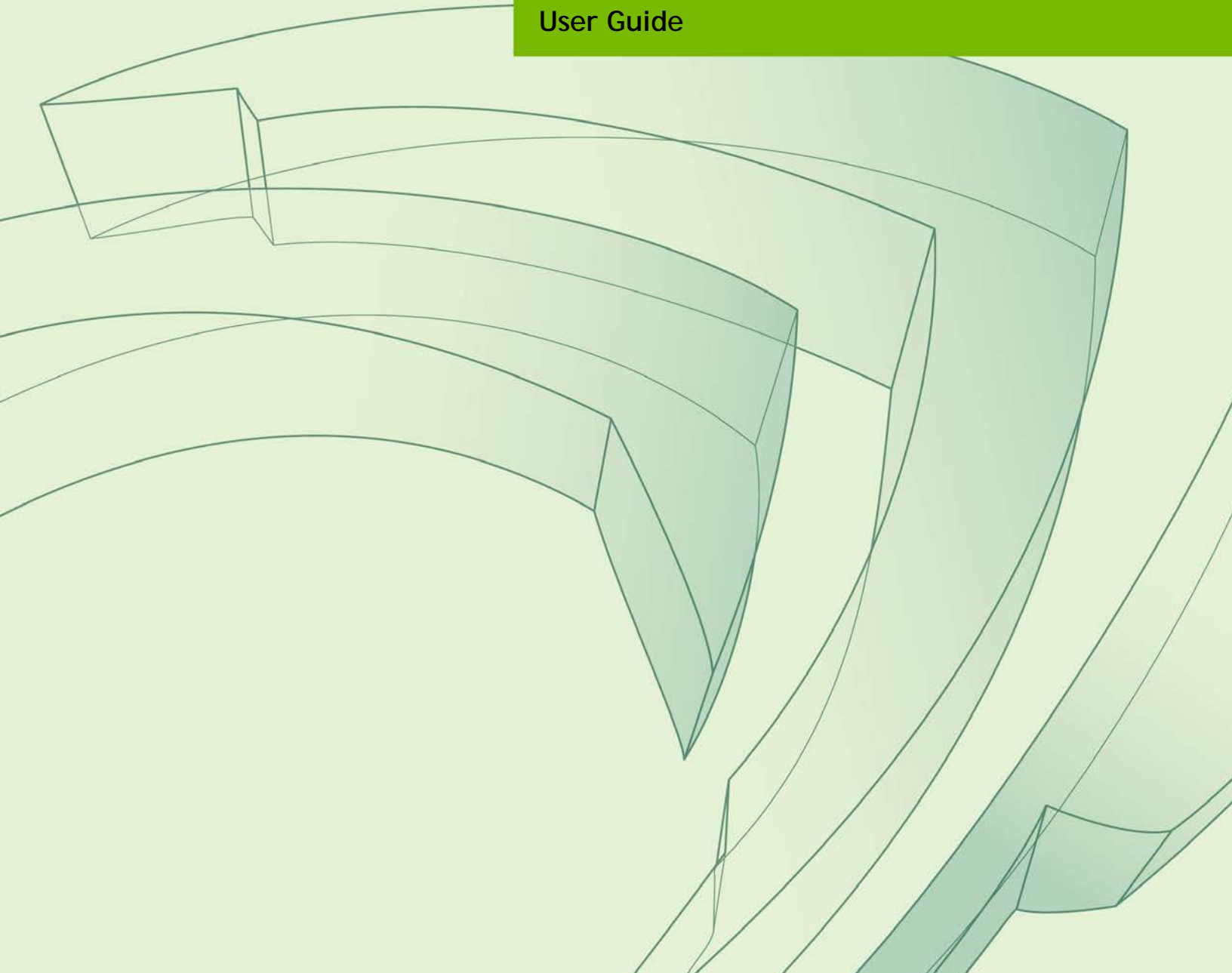# JETSON NANO DEVELOPER KIT

DA_09402_003 | December 17, 2019

User Guide

DOCUMENT CHANGE HISTORY

DA_09402_003

Version	Date	Authors	Description of Change
1.0	March 18, 2019	plawrence	Initial release
1.1	July 8, 2019	plawrence	Updates concurrent with Jetson Linux Driver Package release 32.2. Added and corrected carrier board information; added information about NVIDIA Container Runtime; added information about first boot configuration process.
1.2	December 17, 2019	ssheshadri	Updates concurrent with Jetson Linux Driver Package releae 32.3.1. Added references to VPI.

NOTE

Welcome to the NVIDIA Jetson platform! There two key things you should do right away:

1. Sign up for the NVIDIA Developer Program – this enables you to ask questions and contribute on the NVIDIA Jetson Forums, gives access to all documentation and collateral on the Jetson Download Center, and more.

2. Read this User Guide! After that, check out these important links:

   - Jetson FAQ – Please read the FAQ.

   - Support Resources – This web page links to important resources, including the Jetson Forum and the Jetson Ecosystem page.

   - NVIDIA Jetson Linux Driver Package Release Notes –Jetson Linux Driver Package is a key component of the Jetson platform, and provides the sample filesystem for your developer kit. Please read the latest release notes.

Thanks,

The NVIDIA Jetson team

TABLE OF CONTENTS

DEVELOPER KIT SETUP AND HARDWARE

The NVIDIA® Jetson Nano™ Developer Kit is an AI computer for makers, learners, and developers that brings the power of modern artificial intelligence to a low-power, easy-to-use platform. Get started quickly with out-of-the-box support for many popular peripherals, add-ons, and ready-to-use projects.

Jetson Nano is supported by the comprehensive NVIDIA® JetPack™ SDK, and has the performance and capabilities needed to run modern AI workloads. JetPack includes:

- Full desktop Linux with NVIDIA drivers
- AI and Computer Vision libraries and APIs
- Developer tools
- Documentation and sample code

DEVELOPER KIT SETUP

Before using your developer kit, you need to set up a microSD card with the operating system and JetPack components. The simplest method is to download the microSD card image and follow instructions found in Getting Started with Jetson Nano Developer Kit.

In summary:

- You need a 16 GB or larger UHS-1 microSD card, HDMI or DP monitor, USB keyboard and mouse, and 5V⎓2A Micro-USB power supply.
- Download the image and write it to the microSD card.
- Insert the microSD card into the slot under the Jetson Nano module, then attach the display, keyboard, mouse, and Ethernet cable or wireless networking adapter.
- Connect the Micro-USB power supply. The developer kit powers on automatically.
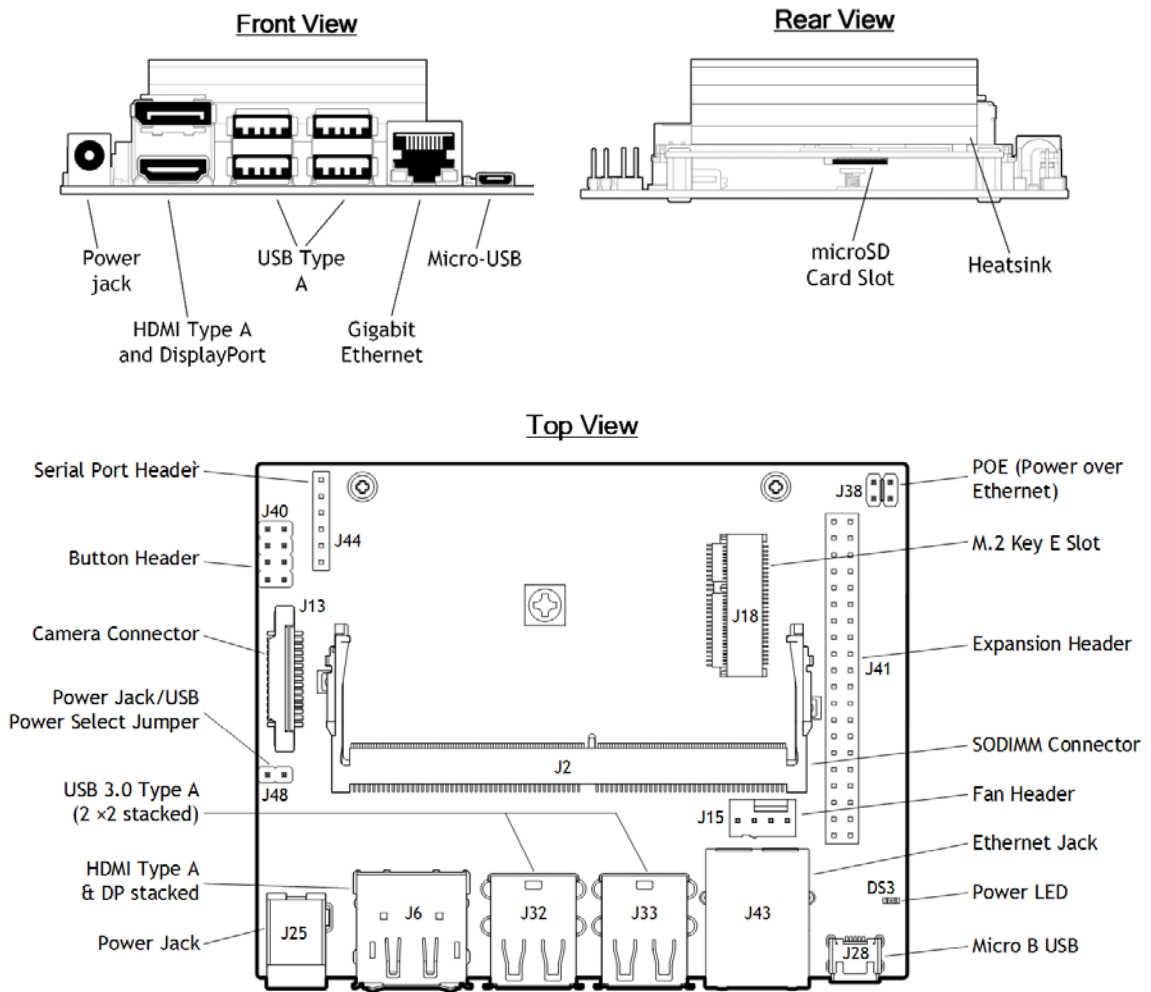
For alternative methods, see How to Install JetPack, below.

INCLUDED IN THE BOX

- Jetson Nano module (P3448-0000) with heatsink
- Reference carrier board (P3449)
- Small paper card with quick start and support information
- Folded paper stand for the developer kit

DEVELOPER KIT INTERFACES

Developer kit module and carrier board

Front View

Rear View

Power jack
USB Type A
Micro-USB
HDMI Type A and DisplayPort
Gigabit Ethernet
microSD Card Slot
Heatsink

Top View

Serial Port Header
J40
J44
Button Header
J13
Camera Connector
Power Jack/USB Power Select Jumper
USB 3.0 Type A (2 ×2 stacked)
J48
HDMI Type A & DP stacked
Power Jack
J25
J6
J32
J33
J43
J15
J2
J18
J41
DS3
J28
POE (Power over Ethernet)
J38
M.2 Key E Slot
Expansion Header
SODIMM Connector
Fan Header
Ethernet Jack
Power LED
Micro B USB

Interface Details

This section highlights some of the Jetson Nano Developer Kit interfaces. See the *Jetson Nano Developer Kit Carrier Board Specification* for comprehensive information.

Module

- [J501] Slot for a microSD card.

- The passive heatsink supports 10W module power usage at 25° C ambient temperature. If your use case requires additional cooling, you can configure the module to control a system fan. See the Jetson Nano Supported Component List for fans that have been verified for attachment to the heatsink.

Carrier Board

- [DS3] Power LED; lights when the developer kit is powered on.

- [J2] SO-DIMM connector for Jetson Nano module.

- [J6] HDMI and DP connector stack.

- [J13] Camera connector; enables use of CSI cameras. Jetson Nano Developer Kit works with IMX219 camera modules, including Leopard Imaging LI-IMX219-MIPI-FF-NANO camera module and Raspberry Pi Camera Module V2.

- [J15] 4-pin fan control header. Pulse Width Modulation (PWM) output and tachometer input are supported.

- [J18] M.2 Key E connector can be used for wireless networking cards; includes interfaces for PCIe (x1), USB 2.0, UART, I2S, and I2C.

  To reach J18 you must detach the Jetson Nano module.

- [J25] Power jack for 5V⎓4A power supply. Accepts a 2.1×5.5×9.5 mm plug with positive polarity.

- [J28] Micro-USB 2.0 connector; can be used in either of two ways:

  - If J48 pins are not connected, you can power the developer kit from a 5V⎓2A Micro-USB power supply.

  - If J48 pins are connected, operates in Device Mode.

- [J32 and J33] are each a stack of two USB 3.0 Type A connectors. Each stack is limited to 1A total power delivery. All four are connected to the Jetson Nano module via a USB 3.0 hub built into the carrier board.

- [J38] The Power over Ethernet (POE) header exposes any DC voltage present on J43 Ethernet jack per IEEE 802.3af.

- [J40] 8-pin button header; brings out several system power, reset, and force recovery related signals (see the following diagram).
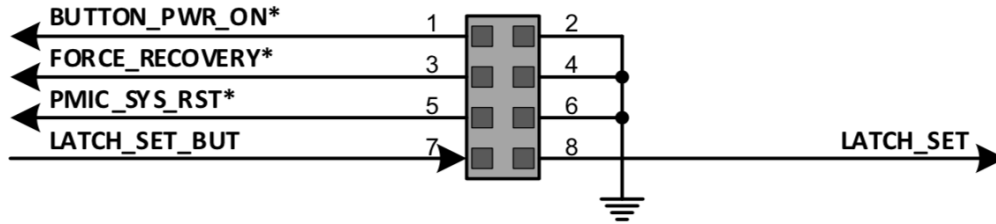
- Pins 7 and 8 disable auto power-on.

- Pins 1 and 2 initiate power-on if auto power-on is disabled.

- Pins 5 and 6 reset the system.

- Pins 3 and 4 put the developer kit into Force Recovery Mode if they are connected when it is powered on.

- [J41] 40-pin expansion header includes:

  - Power pins.

    Two 3.3V power pins and two 5V power pins. These are not switchable; power is always available when the developer kit is connected to power.

    Two 5V pins can be used to power the developer kit at 2.5A each.

  - Interface signal pins.

    All signals use 3.3V levels.

    By default, all interface signal pins are configured as GPIOs, except pins 3 and 5 and pins 27 and 28, which are I2C SDA and SCL, and pins 8 and 10, which are UART TX and RX.

    Jetson® Linux™ Driver Package (L4T) provides a Python library, `Jetson.GPIO`, for controlling GPIOs. The library has the same API as `RPi.GPIO`. See `/opt/nvidia/jetson-gpio/doc/README.txt` on your Jetson system for details.

- [J43] RJ45 connector for gigabit Ethernet.

- [J44] 3.3V serial port header; provides access to the a console.

- [J48] Enables either J28 Micro-USB connector or J25 power jack as power source for the developer kit. Without a jumper, the developer kit can be powered by J28 Micro-USB connector. With a jumper, no power is drawn from J28, and the developer kit can be powered via J25 power jack.

Power Guide

Jetson Nano Developer Kit requires a 5V power supply capable of supplying 2A current.

Micro-USB Power Supply Options

Out of the box, the developer kit is configured to accept power via the Micro-USB connector. Note that some Micro-USB power supplies are designed to output slightly

more than 5V to account for voltage loss across the cable. For example, Adafruit's GEO151UB-6025 Power Supply (validated by NVIDIA for use with the Jetson Nano Developer Kit) is designed to provide 5.25V. The critical point is that the Jetson Nano module requires a minimum of 4.75V to operate. Use a power supply capable of delivering 5V at the J28 Micro-USB connector.

Other Power Supply Options

If the developer kit's total load is expected to exceed 2A, e.g., due to peripherals attached to the carrier board, connect the J48 Power Select Header pins to disable power supply via Micro-USB and enable 5V⎓4A via the J25 power jack. Another option is to supply 5V⎓5A via the J41 expansion header (2.5A per pin).

The J25 power jack is 9.5 mm deep, and accepts positive polarity plugs with 2.1 mm inner diameter and 5.5 mm outer diameter. As an example, NVIDIA has validated Adafruit's GEO241DA-0540 Power Supply for use with Jetson Nano Developer Kit.

Power Budget Considerations

The developer kit's total power usage comprised of carrier board, module, and peripherals, and is determined by your particular use case.

The carrier board consumes between 0.5W (at 2A) and 1.25W (at 4A) with no peripherals attached.

The Jetson Nano module is designed to optimize power efficiency and supports two software-defined power modes. The default mode provides a 10W power budget for the modules, and the other, a 5W budget. These power modes constrain the module to near their 10W or 5W budgets by capping the GPU and CPU frequencies and the number of online CPU cores at a pre-qualified level. See the NVIDIA Jetson Linux Driver Package Developer Guide for details about power modes.

Note that the power mode budgets cover the two major power domains for the Jetson Nano module: GPU (VDD_GPU) and CPU (VDD_CPU). Individual parts of the CORE (VDD_CORE) power domain, such as video encode and video decode, are not covered by these budgets. This is a reason why power modes constrain the module to *near* a power budget, but not to the *exact* power budget. Your particular use case determines the module's actual power consumption. See the *Jetson Nano module Data Sheet* for details about how power domains are used to optimize power consumption.

Attached peripherals are the final component of the developer kit's total power usage. Select a power supply that is capable of delivering sufficient power for your workload.

JETPACK

NVIDIA JetPack SDK is the most comprehensive solution for building AI applications. It includes the latest OS images for Jetson products, along with libraries and APIs, samples, developer tools, and documentation.

SUMMARY OF JETPACK COMPONENTS

This section briefly describes each component of JetPack. For additional details about these components, see the online documentation for JetPack at:

https://docs.nvidia.com/jetson/jetpack/index.html

OS Image

JetPack includes a reference file system derived from Ubuntu.

Libraries and APIs

JetPack libraries and APIs include:

- TensorRT and cuDNN for high-performance deep learning applications
- CUDA for GPU accelerated applications across multiple domains
- NVIDIA Container Runtime for containerized GPU accelerated applications
- Multimedia API package for camera applications and sensor driver development
- VisionWorks, OpenCV, and VPI (Developer Preview) for visual computing applications
- Sample applications

Sample Applications

JetPack includes several samples which demonstrate the use of JetPack components. These are stored in the reference filesystem and can be compiled on the developer kit.

JetPack component	Sample locations on reference filesystem
TensorRT	/usr/src/tensorrt/samples/
cuDNN	/usr/src/cudnn_samples_<version>/
CUDA	/usr/local/cuda-<version>/samples/
Multimedia API	/usr/src/tegra_multimedia_api/
VisionWorks	/usr/share/visionworks/sources/samples/ /usr/share/visionworks-tracking/sources/samples/ /usr/share/visionworks-sfm/sources/samples/
OpenCV	/usr/share/OpenCV/samples/
VPI	/opt/nvidia/vpi/vpi-0.0/samples

Developer Tools

JetPack includes the following developer tools. Some are used directly on a Jetson system, and others run on a Linux host computer connected to a Jetson system.

- Tools for application development and debugging:
  - Nsight Eclipse Edition for development of GPU accelerated applications: Runs on Linux host computer. Supports all Jetson products.
  - CUDA-GDB for application debugging: Runs on the Jetson system or the Linux host computer. Supports all Jetson products.
  - CUDA-MEMCHECK for debugging application memory errors: Runs on the Jetson system. Supports all Jetson products.
- Tools for application profiling and optimization:
  - Nsight Systems for application profiling across GPU and CPU: Runs on the Linux host computer. Supports all Jetson products.
  - nvprof for application profiling across GPU and CPU: Runs on the Jetson system. Supports all Jetson products.
  - Visual Profiler for application profiling across GPU and CPU: Runs on Linux host computer. Supports all Jetson products.
  - Nsight Graphics for graphics application debugging and profiling: Runs on the Linux host computer. Supports all Jetson products.

Documentation

Documents that are relevant to developers using JetPack include:

- JetPack Documentation
- Multimedia API Reference

- [NVIDIA Jetson Linux Driver Package Developer Guide](#)
- [Tegra NVIDIA Jetson Linux Driver Package Release Notes](#)
- [TensorRT Documentation](#)
- [cuDNN Documentation](#)
- [CUDA Toolkit](#)
- [NVIDIA Container Runtime](#)
- [OpenCV Documentation](#)
- [VisionWorks Documentation](#)
- [Nsight Eclipse Edition Documentation](#)
- [CUDA-GDB Documentation](#)
- [CUDA-MEMCHECK Documentation](#)
- [Nsight Systems](#)
- [nvprof](#)
- [Visual Profiler](#)
- [Nsight GraphicsNsight Compute CLI](#)

HOW TO INSTALL JETPACK

There are two ways to install JetPack on your developer kit:

- Use an SD Card image.

  Follow the steps in [Getting Started with Jetson Nano Developer Kit](#) to download the system image and use SD Card writing software to flash it to flash it to a microSD card. Then use the microSD card to boot the developer kit.

- Use NVIDIA SDK Manager.

  You must have a Linux host computer with a working Internet connection to run SDK Manager and flash the developer kit. Supported host operating systems are:

  - Ubuntu Linux x64 Version 18.04 or 16.04

  Follow these instructions to download and install NVIDIA SDK Manager.

  > **Note** Use of SDK Manager to install JetPack requires that:
  >
  > - The developer kit be in Force Recovery mode.
  >
  > - The developer kit *not* be powered by a Micro-USB power supply. The Micro-USB port is needed to flash and update the developer kit.

Before using SDK Manager, follow these steps to power your developer kit and put it into Force Recovery mode:

1. Jumper the Force Recovery pins (3 and 4) on J40 button header

2. Jumper the J48 Power Select Header pins and connect a power supply to J25 power jack. The developer kit automatically powers on in Force Recovery mode.

3. Remove the Force Recovery pins' jumper when the developer kit powers on.

Now use SDK Manager to flash your developer kit with the OS image and install other Jetpack components. SDK Manager can also set up your Linux host computer development environment. For full instructions, see the [SDK Manager documentation](#).

INITIAL CONFIGURATION UPON FIRST BOOT

Whether you use the SD Card image or use SDK Manager to flash your developer kit, upon first boot it will prompt you for initial configuration information like keyboard layout, username and password, etc.

Headless initial configuration

If no display is attached to the developer kit during first boot, the initial configuration process is "headless." That is, you must communicate with the developer kit through a serial application on the host computer (e.g., puTTY) connected via a host serial port and the developer kit's Micro-USB port.

> **Note** Headless initial configuration requires that the developer kit *not* be powered by a Micro-USB power supply, since the Micro-USB port is needed to access the initial configuration prompts.

WORKING WITH JETSON LINUX DRIVER PACKAGE

NVIDIA® Jetson™ Linux Driver Package (L4T, the operating system component of JetPack) provides the Linux kernel, Bootloader, NVIDIA® Jetson™ Board Support Package (BSP), and sample filesystem for Jetson developer kits. L4T is included on the Jetson Nano SD Card image. Alternatively, you can use SDK Manager to install L4T along with all the other JetPack components to your developer kit.

L4T is also available for download directly from the main L4T page on the Jetson Developer Site. See the "Quick Start Guide" section of the NVIDIA Jetson Linux Driver Package Developer Guide for flashing instructions.

The "Platform Adaptation and Bring-Up" topic in the *Developer Guide* describes how to port the Jetson BSP and bootloader from your developer kit to a new hardware platform incorporating the Jetson module. Porting L4T to a new device enables use of the other JetPack components on that device, along with the software you've created using the developer kit.

COMPLIANCE INFORMATION

The NVIDIA Jetson Nano Developer Kit is compliant with the regulations listed in this section.

UNITED STATES

Federal Communications Commission (FCC)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including any interference that may cause undesired operation of the device.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna.
- ▶ Increase the separation between the equipment and receiver.
- ▶ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▶ Consult the dealer or an experienced radio/TV technician for help.

FCC Warning: The FCC requires that you be notified that any changes or modifications to this device not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Underwriters Laboratories (UL)

UL listed Product Logo for Jetson Nano Developer Kit, model name P3450.

UL Recognized Component Logo for Embedded System Module for Jetson Nano, model number P3448

CANADA

## Innovation, Science and Economic Development Canada (ISED)

CAN ICES-3(B)/NMB-3(B)

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

EUROPEAN UNION

European Conformity; Conformité Européenne (CE)
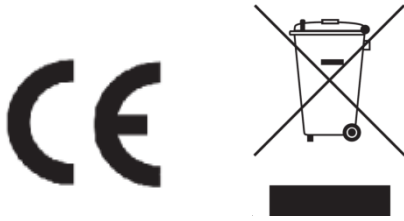
This device complies with the following Directives:

➢ Electromagnetic Compatibility Directive 2014/30/EU
➢ Low Voltage Directive 2014/35/EU
➢ RoHS Directive 2011/65/EU

The full text of EU declaration of conformity is available at the following internet address: www.nvidia.com/support

A copy of the Declaration of Conformity to the essential requirements may be obtained directly from NVIDIA GmbH (Floessergasse 2, 81369 Munich, Germany).

AUSTRALIA AND NEW ZEALAND

Australian Communications and Media Authority

This product meets the applicable EMC requirements for Class B, I.T.E equipment and applicable radio equipment requirements

JAPAN

Voluntary Control Council for Interference (VCCI)

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

VCCI－B

Japan RoHS Material Content Declaration

日本工業規格JIS C 0950:2008により、2006年7月1日以降に販売される特定分野の電気および電子機器について、製造者による含有物質の表示が義務付けられます。

機器名称: Jetson Nano Developer Kit 開発者コンポーネント

主な分類	特定化学物質記号					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
PCBボード	0	0	0	0	0	0
パッシブ電子部品	除外項目	0	0	0	0	0
アクティブ電子部品	除外項目	0	0	0	0	0
コネクター / ケーブル	除外項目	0	0	0	0	0
プロセッサー	0	0	0	0	0	0
メモリ	0	0	0	0	0	0
機械部品	除外項目	0	0	0	0	0
はんだ付け材料	0	0	0	0	0	0
フラックス、クリームはんだ、ラベル、その他消耗品	0	0	0	0	0	0

注：

1.「0」は、特定化学物質の含有率が日本工業規格JIS C 0950:2008に記載されている含有率基準値より低いことを示します。

2. 「除外項目」は、特定化学物質が含有マークの除外項目に該当するため、特定化学物質について、日本工業規格JIS C 0950:2008に基づく含有マークの表示が不要であることを示します。

3. 「0.1wt%超」または「0.01wt%超」は、特定化学物質の含有率が日本工業規格JIS　C 0950:2008　に記載されている含有率基準値を超えていることを示します。

A Japanese regulatory requirement, defined by specification JIS C 0950: 2008, mandates that manufacturers provide Material Content Declarations for certain categories of electronic products offered for sale after July 1, 2006.

Product Model Number: Jetson Nano Developer Kit

Major Classification	Symbols of Specified Chemical Substance					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
PCB	0	0	0	0	0	0
Passive components	Exempt	0	0	0	0	0
Active components	Exempt	0	0	0	0	0
Connectors/Cables	Exempt	0	0	0	0	0
Processor	0	0	0	0	0	0
Memory	0	0	0	0	0	0
Mechanicals	Exempt	0	0	0	0	0
Soldering material	0	0	0	0	0	0
Flux, Solder Paste, label and other consumable materials	0	0	0	0	0	0

Notes:

1. "0" indicates that the level of the specified chemical substance is less than the threshold level specified in the standard, JIS C 0950: 2008.

2. "Exempt" indicates that the specified chemical substance is exempt from marking and it is not required to display the marking for that specified chemical substance per the standard, JIS C 0950: 2008.

3. "Exceeding 0.1wt%" or "Exceeding 0.01wt%" is entered in the table if the level of the specified chemical substance exceeds the threshold level specified in the standard, JIS C 0950: 2008.

SOUTH KOREA

Radio Research Agency (RRA)

R-R-NVA-P3450

R-R-NVA-P3448

B급 기기	이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Korea RoHS Material Content Declaration

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준비</td><td>상호 :</td><td>앤비디아홍콩홀딩즈리미티드(영업소)</td><td>법인등록번호</td><td>110181-0036373</td></tr>
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<tr><td colspan="5">엔비디아의 그래픽 카드제품은 전기 전자제품 및 자동차의 자원순환에 관한 법률 시행령 제 11조 제 1항에 의거한 법 시행행규칙 제 3조에에따른 유해물질함유 기준을 확인 및 평가한 결과, 이를 준수하였음을 공표합니다.</td></tr>
<tr><td colspan="5">구비서류 : 없음
작성방법</td></tr>
</table>

① 제품의 종류는 "전기.전자제품 및 자동차의 자원순환에관한 법률 시행령" 제 8조 제 1항 및 제 2항에 따른 품목별로 구분하여 기재합니다.

② 전기 전자 제품의 경우 모델명 (번호), 자동차의 경우, 제원관리번호를 기재합니다.

③ 해당제품의 제조업자 또는 수입업자를 기재합니다.

Confirmation and Evaluation Form Concerning the Adherence to Acceptable Standards of Hazardous Materials Contained in Products

Statement Prepared by	Company Name:	Nvidia HongKong Holding Ltd.Korea branch	Corporate Identification Number:	110181-0036373
	Name of Company Representative:	Karen Theresa Burns	Business Registration Number:	120-84-06711
	Address	2788 San Tomas Expressway, Santa Clara, CA 95051		

Product Information			
Product Category:	N/A	Name of Product:	N/A
Detailed Product Model Name (Number):	N/A	Date of first market release:	N/A
Weight of Product:	N/A	Manufacturer and/or Importer:	NVIDIA Corporation

This for is publicly certify That NVIDIA Company has undergone the confirmation and evaluation procedures for the acceptable amounts of hazardous materials contained in graphic card according to the regulations stipulated in Article 3 of the 'Status on the Recycling of Electrical and Electronic Products, and Automobiles' and that company has graphic card adhered to the Enforcement Regulations of Article 11, Item 1 of the statute.

Attachment: None
＊Preparing the Form

① Please indicate the product category according to the categories listed in Article 8, Items 1and 2 of the ' Enforcement Ordinance of the Statute on the Recycling of Electrical, Electronic and Automobile Materials'

② For electrical and electronic products, please indicate the Model Name (and number). For automobiles, please indicate the Vehicle Identification Number.

③ Please indicate the name of manufacturer and/or importer of the product.

RUSSIA/KAZAKHSTAN/BELARUS

Customs Union Technical Regulations (CU TR)

This device complies with the technical regulations of the Customs Union (CU TR)

This device complies with the rules set forth by Federal Agency of Communications and the Ministry of Communications and Mass Media

Federal Security Service notification has been filed.

TAIWAN

Bureau of Standards, Metrology & Inspection (BSMI)

This device complies with CNS 13438 (2006) Class B.

Product Name: Jetson Nano Developer Kit開發者組件

Taiwan RoHS Material Content Declaration

限用物質含有情況標示聲明書 Declaration of the presence condition of the Restricted Substances Marking						
設備名稱：Jetson Nano Developer Kit Equipment Name: Jetson Nano Developer Kit						
單元 Parts	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr(VI))	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
印刷電路板 PCB	O	O	O	O	O	O
處理器 Processor	O	O	O	O	O	O

部件名称 Parts	有害物質 Hazardous Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
主動電子零件 Active components	-	O	O	O	O	O
被動電子零件 Passive components	-	O	O	O	O	O
存儲設備 Memory	O	O	O	O	O	O
機械部件 Mechanicals	-	O	O	O	O	O
連接器/線材 Connectors/Cable	-	O	O	O	O	O
焊接金屬 Soldering material	O	O	O	O	O	O
助焊劑，錫膏，標籤及耗材 Flux, Solder Paste, label and other consumable materials	O	O	O	O	O	O

备考1：O：系指該限用物質未超出百分比含量基準值
Note 1： O：indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.
备考2： -：系指該項限用物質為排外項目。
Note 2： -：indicates that the restricted substance corresponds to the exemption.

此表中所有名稱中含 "-" 的部件均符合歐盟 RoHS 立法。
All parts named in this table with an "-" are in compliance with the European Union's RoHS Legislation.

注：環保使用期限的參考標識取決與產品正常工作的溫度和濕度等條件
Note: The referenced Environmental Protection Use Period Marking was determined according to normal operating use conditions of the product such as temperature and humidity.

CHINA

China RoHS Material Content Declaration

产品中有害物质的名称及含量
The Table of Hazardous Substances and their Content
根据中国《电器电子产品有害物质限制使用管理办法》
as required by Management Methods for Restricted Use of Hazardous Substances in Electrical and Electronic Products

部件名称 Parts	有害物质 Hazardous Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 PCB	O	O	O	O	O	O

处理器 Processor	O	O	O	O	O	O
主动电子零件 Active components	X	O	O	O	O	O
被动电子零件 Passive components	X	O	O	O	O	O
存储设备 Memory	O	O	O	O	O	O
机械部件 Mechanicals	X	O	O	O	O	O
连接器/线材 Connectors / Cable	X	O	O	O	O	O
焊接金属 Soldering material	O	O	O	O	O	O
助焊剂，锡膏，标签及耗材 Flux, Solder Paste, label and other consumable materials	O	O	O	O	O	O

本表格依据SJ/T 11364-2014 的规定编制
The table according to SJ/T 11364-2014

O：表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572-2011 标准规定的限量要求以下。
O: Indicates that this hazardous substance contained in all of the homogeneous materials for this
part is below the limit requirement in GB/T 26572-2011.
X：表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572-2011 标准规定的限量要求。
X: Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in GB/T 26572-2011.

此表中所有名称中含 "X" 的部件均符合欧盟 RoHS 立法。
All parts named in this table with an "X" are in compliance with the European Union's RoHS Legislation.

注：环保使用期限的参考标识取决于产品正常工作的温度和湿度等条件
Note: The referenced Environmental Protection Use Period Marking was determined according to normal operating use conditions of the product such as temperature and humidity.

INDIA

India RoHS Compliance Statement
This product, as well as its related consumables and spares, complies with the reduction in hazardous substances provisions of the "India E-waste (Management and Handling) Rule 2016". It does not contain lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers in concentrations exceeding 0.1 weight %

and 0.01 weight % for cadmium, except for where allowed pursuant to the exemptions set in Schedule 2 of the Rule.

India RoHS Self-Declaration Form
(as per E-Waste (Management) Rules, 2016)

Sr. No.	Product Category & Code (as Per Schedule I of E-Waste (M) Rules, 2016	Product name	Model No.	Product Weight (g)	Date of placing on market	Compliance with RoHS Yes/No	RoHS Information provided on product info booklet Yes/No	In case Product is imported from other country, name of the country manufactured
i.	ITEW2	Jetson Nano Developer Kit	P3450	N/A	N/A	Yes	Yes	China

Notice

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