

KEY FEATURES

NVIDIA Tegra K1 Mobile Processor

- > Quad-core, 4-Plus-1™ ARM® Cortex –A15 MPCore™ processor with NEON technology
- > Low-power NVIDIA Kepler™-based GeForce® graphics processor
- > Image-signal processor
- > Ultra low-power audio processor
- > Advanced power management
 - Dynamic voltage and frequency scaling
 - Multiple clock and power domains

Memory

- > 2 GB DDR3L system RAM
- > 16 GB eMMC 4.51 storage

Network

- > 10/100/1000BASE-T Ethernet

Audio

- > Microphone jack
- > Headphone jack

*I/O Expansion headers: refer to product documentation for header specification.

ADDITIONAL INFORMATION

Recommended Operating Conditions

The Jetson TK1 developer board should be used under the following operating conditions:
Ambient Operating Temperature: Min: 0 °C, Max: 50 °C

USB

- > USB Type-A Host 3.0 speed
- > Micro USB connector: supports recovery mode and host mode

I/O

- > Display HDMI connector
- > Half mini-PCIe expansion slot
- > SATA connector
- > 4-pin power connector
- > RS232 serial port (DB9)
- > SD card connector
- > JTAG connector
- > Two I/O expansion headers*

Buttons, Switches

- > Power On/Off
- > Reset
- > Force Recovery

Power Options

- > External 12V AC adapter

KIT CONTENTS

- > NVIDIA Jetson TK1 developer board
- > AC adapter
- > Power Cord
- > USB Micro-B to USB A cable
- > Rubber feet (4)
- > Quick Start Guide

Optional, not included

- > HDMI display and cable (type A)
- > Keyboard and Mouse
- > USB hub to connect multiple USB devices
- > Serial null modem cable
- > JTAG debugger

LEGAL INFORMATION

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.

For More information, visit <http://developer.nvidia.com/jetson-tk1>

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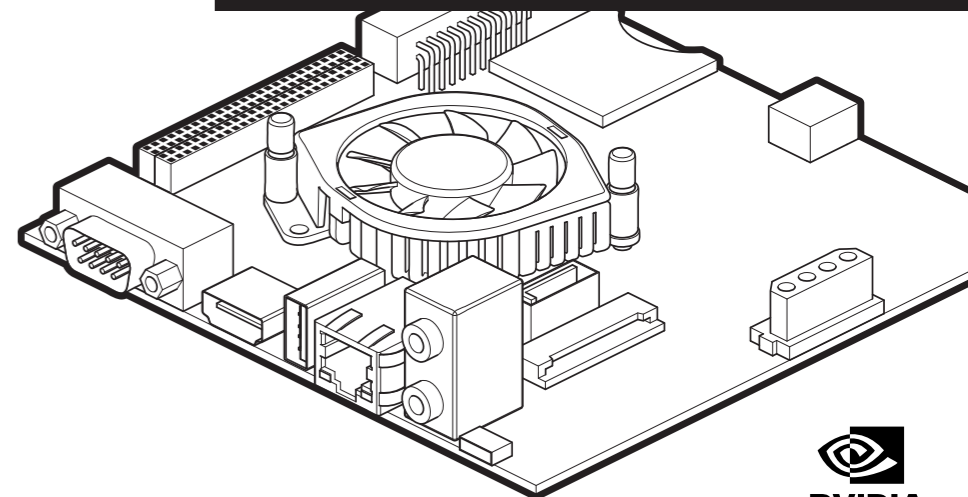


176-0202-000 Rev 7

NVIDIA® JETSON TK1

SOFTWARE DEVELOPER KIT

QUICK START GUIDE



INTRODUCTION

The NVIDIA® Jetson TK1 developer board is a full-featured device ideal for software development within the Linux environment. Standard connectors are used to access Tegra features and interfaces, enabling a highly flexible and extensible development platform.

Go to <http://developer.nvidia.com/jetson-tk1> or contact your NVIDIA representative for access to software updates and the developer SDK supporting the OS image and host development platform that you want to use. The developer SDK includes an OS image that you will load onto your Tegra device, supporting documentation, and code samples to help you get started.

GETTING STARTED

Individual development efforts will vary and may result in modifications to the system configuration. It is recommended that you begin with the basic system configuration (as shipped) to ensure proper system operation prior to any further development.



CAUTION: The NVIDIA® Jetson TK1 developer board contains ESD-sensitive parts. Always use appropriate anti-static and grounding techniques when working with the system. Failure to do so can result in ESD discharge to sensitive pins, and irreparably damage your Jetson TK1 board. NVIDIA will not replace units that have been damaged due to ESD discharge. Always disconnect any power source prior to adding additional modules or connecting peripheral devices to the developer board. It is important that all modules are properly seated in their connectors to ensure proper operation and to avoid damaging the module or the developer board.

Obtaining Support

The Jetson TK1 developer board is supported through the NVIDIA Developer Zone at <http://developer.nvidia.com/jetson-tk1>



Note: Remember, software may not be pre-loaded on the device. Contact your NVIDIA representative for information on available software.

Powering Up the Tegra Device

1. Connect the AC adapter supplied in your kit to the power connector of your device [14].
2. Plug the power adapter into an appropriately rated electrical outlet.
3. The system should power on, if not, press and release the power button on the device [19].

Login Credentials

- > Username: *ubuntu*
- > Password: *ubuntu*



Note: Login is not required on the serial console. Please plan physical security accordingly.

Force Recovery Mode

To update your system, you will need to be in Force USB Recovery Mode so you can transfer system software to the developer board. When in Force USB Recovery Mode, you are able to update system software and write the boot loader, boot configuration table (BCT), and partition configuration to the Tegra device.

See the Developer SDK documentation for OS specific instructions when updating system software on your developer board.



CAUTION: ALWAYS CONNECT ALL EXTERNAL PERIPHERAL DEVICES BEFORE CONNECTING THE POWER SUPPLY TO THE AC/DC JACK. Connecting a device while powered on may damage the developer board or peripheral device.

To place system in Force USB Recovery Mode:

1. Power down the device. If connected, remove the AC adapter from the device. The device **MUST** be powered OFF, not in a suspend or sleep state.
2. Connect the Micro-B plug on the USB cable to the Recovery (USB Micro-B) Port on the device [8] and the other end to an available USB port on the host PC.
3. Connect the power adapter to the device [14].
4. Press and release the POWER button [19], if necessary; press and hold the RECOVERY FORCE button [17]; while depressing the RECOVERY FORCE button, press and release the RESET button [18]; wait two seconds and release the RECOVERY FORCE button.



Note: When in Force USB Recovery Mode, the development system will not boot up (nothing appears on display or serial port).

After successfully updating the system software and restarting your developer board, you'll see the system continue through the boot up process.

CONNECTION SYSTEM LAYOUT

