SCOPE OF WORK
Help you to flash your Auvidea carrier board system for the first time and get everything up and running.

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SECTION 1  Document revisions and changes

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<th>Changes</th>
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<tr>
<td>1.1</td>
<td>Document overhaul of quick starter guide, internal verification process</td>
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<tr>
<td>1.2</td>
<td>Small fixes</td>
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<td>1.3</td>
<td>Fixed spelling, cleaner Headings</td>
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<tr>
<td>1.6</td>
<td>Surpassed QuickStart guide version number to better indicate that the Software_Setup_Guide should be used in the future</td>
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SECTION 2  Simple flashing guide (recommended)

This section describes how to flash your Auvidea carrier board system so it can boot and run. With this guide everything you need is included in the download package from Auvidea. This flashing guide is recommended for the Auvidea carrier board series.

2.1 Before you start

- Please make sure to use a Linux host PC with Ubuntu 18.04 operating system. Please use a native setup (no virtual machine). This Host PC should have a high bandwidth internet connection for the download of 3GByte+ installation file in the following steps.
- You will also need a high-quality standard USB 2.0 Type A to micro-USB 2.0 cable.

2.2 Download installation file from Auvidea

1) Download the installation file for your setup from Auvidea
   https://auvidea.eu/firmware/
2) Open a terminal window (CTRL + ALT + T) on your Linux host PC and navigate to your download location.

   ```bash
   cd <path_to_downloaded Educação_tar>
   ```
3) Extract the tar.gz file you just downloaded.

   ```bash
   tar xzvf bootloader.tar.gz
   ```
4) Change directory to the extracted bootloader folder.

   ```bash
   cd ./bootloader
   ```
2.3  Connect carrier board to host PC

5) Connect the system to the Linux host PC. Please use a USB 2.0 cable (micro-USB on the carrier board).
6) After connecting to the host PC power up the system. The system will detect the host PC and automatically enter the flashing state (also called force recovery mode).
7) Check that the connection is established with the lsusb command. You should find one entry with Nvidia Corp. as highlighted below.
2.4 Flasing of system

8) Use the flashcmd script in the extracted bootloader folder to transfer the software into the Jetson compute module and flash it.

```
Command
hos PC

sudo bash ./flashcmd.txt
```

```
Terminal
host PC

example
HDMI
monitor
dev
system
```

9) Please connect a monitor to the system. After the flashing process has completed the should automatically boot and show the Ubuntu desktop.

You now have a functioning system ready for your needs.
2.5 Installing additional NVIDIA SDK components

10) Now you can install additional NVIDIA SDK components. Please connect the system to the Internet. Open a terminal window on the system (CTRL ALT T). Use aptget to install the components. If this fails, please check the Internet connection of the system.

```
Command
dev system

sudo apt-get update && sudo apt-get install nvidia-jetpack
```

```
Terminal
dev system example

Reading package lists... Done
Reading package lists... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  apt-clone archdetect-deb bogl-btern busybox-static cryptsetup-bin
  dpkg-repack gir1.2-timezoneemap-1.6 gir1.2-xkl-1.6 grub-common
  kde-window-manager kinit kio kpackagetools kwayland-data kwin-common
  kwin-data kwin-x11 libdebann-installer libdecorations3-5
  libdecorations3private5 libkactivities5 libkf5sattica5
  libkf5completion-data libkf5completionon5 libkf5declarative-data
  libkf5decorative5 libkf5decoration5 libkf5globalaccel5
  libkf5globalaccelpr5 libkf5globaldecor5 libkf5jobwidgets-data
  libkf5jobwidgets5 libkf5kmultis-data libkf5kmultis5 libkf5kmultis6
  libkf5kmultis5 libkf5kmultis5 libkf5kmultis5
```

SECTION 3  Advanced flashing guide (experienced users)

The alternative flashing guide is intended to be used if you encounter problems with the recommended guide. This guide is more general and should also work with boards from other vendors and requires a few more steps. In this guide you will download the core operating system from NVIDIA with the SDK manager and only download the files that need to be changed for your carrier board from Auvidea.

3.1 Before you start

- Please make sure to use a Linux host PC with Ubuntu 18.04 operating system. Please use a native setup (no virtual machine). This host PC should have a high bandwidth internet connection for the download of 2GB+ installation file in the following steps.
- You will also need a high-quality standard USB 2.0 Type A to micro-USB 2.0 cable.

3.2 Install and configure NVIDIA SDK manager

1) Download and install the Nvidia SDK manager for Ubuntu
2) Install Jetpack 4.6 and up for your Jetson module (AGX Xavier)

3) Skip the flashing process after installation. This step is necessary to set up the file system and contents of you Host PC. Do not flash with this configuration! Specific steps need to be performed to enable all functionality of you carrier board as described in the following steps.
3.3 Download installation files from Auvidea

4) Download our latest firmware for your carrier board

   | Link                  | https://auvidea.eu/firmware/
   |-----------------------|-----------------------------
   | Auvidoe webpage       | (example)                   
   | Command host PC       | tar xvf <your_downloaded_tar>.tar.bz2
   |                       | cd <your_extracted_downloaded_tar>
   |                       | tar xvf kernel_out.tar.bz2
7) Copy the extracted kernel_out folder into your jetpack 4.6 or up L4t folder. 
<Jetpack_L4T_folder> is usually located at:
"/home/<YOUR_USERNAME>/nvidia/nvidia_sdk/JetPack_<Jetpack_version>_Linux_<Jetson_module>/Linux_for_Tegra"

8) Connect a USB 2 micro USB cable to the Jetson bevor powering it up
9) After connecting to host PC power up the Xavier AGX. This will put the system in to flashing mode (also force recovery mode) with a connected Host PC.
10) Check that the connection is established with the lsusb command. You should find one entry with Nvidia Corp. as highlighted below.

11) Open your terminal in the <Jetpack_L4T_folder> folder if you are not already in it.
12) You can now flash your system using the following command

<table>
<thead>
<tr>
<th>Module name</th>
<th>&lt;your_module&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jetson Nano</td>
<td>jetson-nano-emmc</td>
</tr>
<tr>
<td>Jetson AGX-Xavier</td>
<td>jetson-xavier</td>
</tr>
<tr>
<td>Jetson Xavier NX</td>
<td>jetson-xavier-nx-devkit-emmc</td>
</tr>
<tr>
<td>Jetson TX2 NX</td>
<td>jetson-xavier-nx-devkit-tx2-nx</td>
</tr>
</tbody>
</table>

Command:

```
rsync -axHAWX --numeric-ids --info=progress2 ./kernel_out/<Jetpack_L4T_folder> (Modify for your version/module needs)
```

Terminal:

```
lsusb
```

Command:

```
sudo ./flash <your_module> mmcblk0p1
```

3.4 Flashing of system
13) Please connect a monitor to the system. After the flashing process has completed the system should automatically boot and show the Ubuntu desktop.

You now have a functioning system ready for your needs.

### 3.5 Installing additional NVIDIA SDK components

14) Now you can install additional NVIDIA SDK components. Please connect the system to the internet. Open a terminal window on the system (CTRL ALT T). Use `apt-get` to install the components. If this fails, please check the Internet connection of the system.

```
sudo apt-get update && sudo apt-get install nvidia-jetpack
```
SECTION 4  Disclaimer

Thank you for reading this manual. If you have found any typos or errors in this document, please let us know.
This is the preliminary version of this data sheet. Please treat all specifications with caution as there may be any typos or errors.

The Auvredea Team

Copyright notice
SECTION 5 Trademarks

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End of document