install opency 4.2 and contrib in ubantu linux

To install OpenCV 4.2 with the contrib modules on Ubuntu Linux, follow these steps. This process compiles OpenCV from source, which gives you full flexibility and access to all contrib modules.

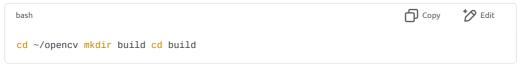
# Step-by-Step Installation of OpenCV 4.2 + Contrib on Ubuntu

#### 1. Install Dependencies



bash	Сору	* Edit
<pre>cd ~ git clone -b 4.2.0 https://github.com/opencv/opencv.git git https://github.com/opencv/opencv_contrib.git</pre>	clone -b 4.2.	0

### 3. Create Build Directory



#### 4. Configure with CMake



### 5. Compile (This may take 20-90 minutes)

Use -j with number of CPU cores, e.g., -j\$(nproc)

bash	Сору	* Edit
make -j\$(nproc)		

### 6. Install

bash	Сору	* Edit
sudo make install sudo ldconfig		

### 7. Verify Installation

Check version with Python:

bash	Сору	* Edit
<pre>python3 -c "import cv2; print(cv2version)"</pre>		

It should show 4.2.0.

Would you like help setting up a Python virtual environment with OpenCV 4.2 too?



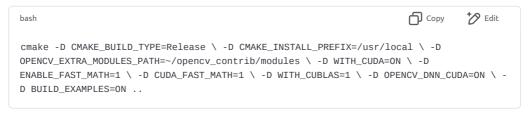
```
cmake -D CMAKE_BUILD_TYPE=Release \
    -D CMAKE_INSTALL_PREFIX=/usr/local \
    -D OPENCV_EXTRA_MODULES_PATH=~/opencv_contrib/modules \
    -D BUILD_EXAMPLES=ON .. complie wit gpu
```

To compile OpenCV 4.2 with GPU (CUDA) support, you need to make sure your system has:

- An NVIDIA GPU
- CUDA and cuDNN installed
- Correct version compatibility between OpenCV 4.2, CUDA, and your NVIDIA driver

# ☑ Update CMake Command for GPU (CUDA) Support

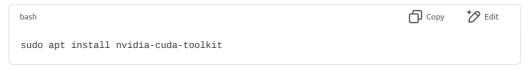
Here's the modified cmake command:



# X Additional Setup Steps

#### 1. Install CUDA and cuDNN

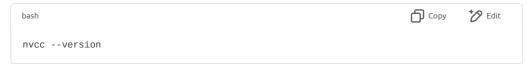
If you haven't already:



⚠ However, it's better to install CUDA and cuDNN directly from NVIDIA's website to match your GPU.

### 2. Check CUDA Availability

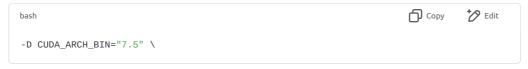
After installing, verify:



Make sure it's detected correctly.

#### 3. Optional: Set Compute Capability

To optimize for your GPU, add:



Replace 7.5 with your GPU's compute capability (check here).

Example:

-D CUDA\_ARCH\_BIN="6.1" # For GTX 1050 Ti

# After CMake:



## Test CUDA in OpenCV

#### Look for:

- CUDA = YES
- cuDNN = YES (if used)
- NVIDIA GPU arch = present

Would you like help verifying if your GPU is compatible with CUDA and OpenCV 4.2?

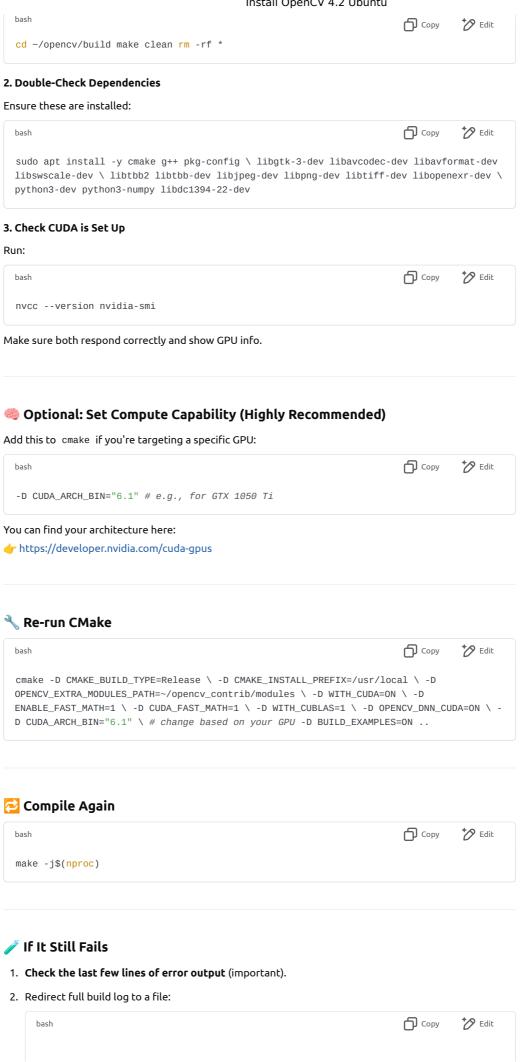
### 日の句のかのいく

```
torch importer.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est nearestneighbors.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est_orb.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est_utils.cpp.o
[ 47%] Linking CXX executable ../../bin/opencv_test_features2d
[ 47%] Linking CXX executable ../../bin/opencv_test_dnn
[ 47%] Built target opencv_test_features2d
[47%] Built target opencv_test_dnn
Makefile:162: recipe for target 'all' failed
make: *** [all] Error 2make -j$(nproc) clean change cmake cmake -D
CMAKE_BUILD_TYPE=Release \
  -D CMAKE_INSTALL_PREFIX=/usr/local \
  -D OPENCV_EXTRA_MODULES_PATH=~/opencv_contrib/modules
  -D WITH_CUDA=ON \
  -D ENABLE_FAST_MATH=1 \
  -D CUDA_FAST_MATH=1 \
  -D WITH CUBLAS=1 \
  -D OPENCV_DNN_CUDA=ON \
  -D BUILD EXAMPLES=ON ..
```

You're encountering a **build error at 47%**, which likely occurred during CUDA-related linking or compilation. Let's go through a **clean rebuild process** and some key steps to fix it.

# ☑ Step-by-Step Fix: Clean Build with CUDA Support

#### 1. Clean Previous Build



```
make -j$(nproc) 2>&1 | tee build_log.txt
```

3. Share the last 20–30 lines of the log with me, and I can pinpoint the cause.

Would you like me to help you find your GPU's exact CUDA compute capability?



(base) sakthees@sakthees-monk:~/opencv/build\$ nvcc --version nvcc: NVIDIA (R) Cuda compiler driver Copyright (c) 2005-2016 NVIDIA Corporation Built on Tue\_Jan\_10\_13:22:03\_CST\_2017 Cuda compilation tools, release 8.0, V8.0.61 (base) sakthees@sakthees-monk:~/opencv/build\$ nvidia-smi Tue May 6 10:14:06 2025 NVIDIA-SMI 390.157 Driver Version: 390.157 | GPU Name Persistence-M| Bus-Id Disp.A | Volatile Uncorr. ECC | | Fan Temp Perf Pwr:Usage/Cap| | Memory-Usage | GPU-Util Compute M. | 0 GeForce GT 730 Off | 00000000:01:00.0 N/A | N/A | | 11% 48C P8 N/A / N/A | 240MiB / 4025MiB | N/A Default GPU Memory | | Processes: GPU PID Type Process name Usage |-----Not Supported

Thanks for the details — here's what we're dealing with:

### Critical Issues

- 1. Your CUDA version is 8.0 (from 2016)
  - $\rightarrow$  **Too old** for OpenCV 4.2 (which expects CUDA  $\geq$ 10.0).
- 2. **NVIDIA Driver is 390.157** 
  - $_{\rightarrow}$  Also outdated not compatible with newer CUDA versions.
- 3. GPU: GeForce GT 730
  - $_{\rightarrow}\,$  Only supports up to Compute Capability 3.5
  - $\rightarrow$  Many CUDA features (like opencv\_dnn\_cuda ) are **not supported** on this GPU.

# Recommendation

To build OpenCV 4.2 with CUDA, you **must** upgrade:

A. Upgrade to CUDA 10.2 or newer

But your driver (390.157) only supports CUDA 9.1 max.

So you must also upgrade your NVIDIA driver first.

### **B.** Check Compatibility

GT 730 (Kepler, Compute Capability 3.5) support was dropped after CUDA 10.2.

This means:

- You can only use CUDA 10.2 with GT 730.
- Anything newer (11.x, 12.x) won't support your GPU.

### TOP Option 1: Stay with GT 730

- 1. Upgrade to CUDA 10.2 + driver >= 440.x
- 2. Compile OpenCV 4.2 with:



This will work, but will exclude advanced GPU features like opencv\_dnn\_cuda.

# TOPTION 2: Skip CUDA (if GPU is too weak)

Use OpenCV 4.2 without CUDA, just:

```
bash

Copy

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```

Still supports CPU-based DNN and everything else.



Component	Your System	Required	Fix
CUDA	8.0	≥10.2	Install CUDA 10.2 manually
NVIDIA Driver	390.157	≥440.x	Upgrade NVIDIA driver
GPU (GT 730)	Compute 3.5	for 10.2 only	Set CUDA_ARCH_BIN="3.5"
OpenCV 4.2 DNN GPU	X Not supported	Needs CC ≥5.3	Use CPU DNN instead

Would you like a step-by-step guide to upgrade your driver and install CUDA 10.2?

```
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```

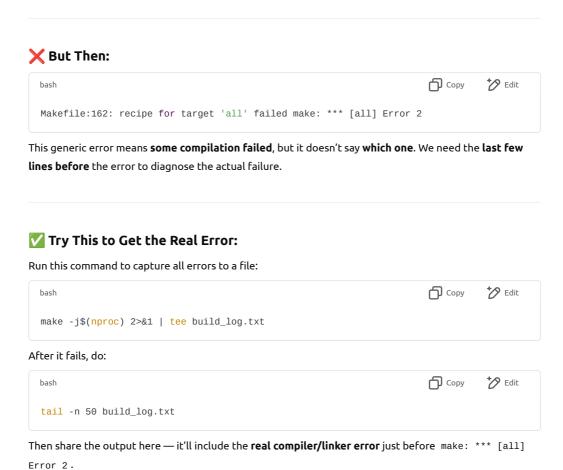
```
cmake -D CMAKE_BUILD_TYPE=Release \
    -D CMAKE_INSTALL_PREFIX=/usr/local \
    -D OPENCV_EXTRA_MODULES_PATH=~/opencv_contrib/modules \
    -D BUILD_EXAMPLES=ON .. ok compile for cmake -D
CMAKE_BUILD_TYPE=Release \
    -D CMAKE_INSTALL_PREFIX=/usr/local \
```

```
-D OPENCV_EXTRA_MODULES_PATH=~/opencv_contrib/modules
  -D BUILD_EXAMPLES=ON .. ★ Summary
Component Your System Required Fix
CUDA 8.0 ≥10.2 Install CUDA 10.2 manually
NVIDIA Driver 390.157 ≥440.x Upgrade NVIDIA driver
GPU (GT 730) Compute 3.5  only Set
CUDA ARCH BIN="3.5"
OpenCV 4.2 DNN GPU X Not supported Needs CC ≥5.3 Use
CPU DNN instead [ 47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est_detectors_invariance.cpp.o
[47%] Building CXX object
modules/dnn/CMakeFiles/opencv_test_dnn.dir/test/test_onnx_impo
rter.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv test features2d.dir/test/t
est detectors regression.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est drawing.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est_fast.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est keypoints.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv test features2d.dir/test/t
est main.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est matchers algorithmic.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est_mser.cpp.o
[47%] Building CXX object
modules/dnn/CMakeFiles/opencv_test_dnn.dir/test/test_tf_importe
r.cdd.o
[47%] Building CXX object
modules/dnn/CMakeFiles/opencv_test_dnn.dir/test/test_torch_imp
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est_nearestneighbors.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est orb.cpp.o
[47%] Building CXX object
modules/features2d/CMakeFiles/opencv_test_features2d.dir/test/t
est utils.cpp.o
[ 47%] Linking CXX executable ../../bin/opencv_test_features2d
[ 47%] Linking CXX executable ../../bin/opencv_test_dnn
[ 47%] Built target opencv_test_features2d
[ 47%] Built target opencv_test_dnn
Makefile:162: recipe for target 'all' failed
make: *** [all] Error 2
(base) sakthees@sakthees-monk:~/opencv/build$
```

You're building OpenCV 4.2 **without CUDA now**, which is correct for your current setup — but it's still **failing at 47%** during the make stage.



- It's building and linking opencv\_test\_features2d and opencv\_test\_dnn
- It passed half the modules already
- CUDA is **not** involved now cleaner build path



### In the Meantime: Skip Tests (Optional)

If the problem is in test modules (which it appears to be), you can build OpenCV without test targets:

```
bash

Cmake -D CMAKE_BUILD_TYPE=Release \ -D CMAKE_INSTALL_PREFIX=/usr/local \ -D

OPENCV_EXTRA_MODULES_PATH=~/opencv_contrib/modules \ -D BUILD_TESTS=OFF \ -D

BUILD_PERF_TESTS=OFF \ -D BUILD_EXAMPLES=ON ..

Then re-run:
```

memre-rum.



This skips test suites like opencv\_test\_dnn which are not needed unless you're developing or validating OpenCV itself.