

# GstGPGPU - GstCUDA and GstOpenCL

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How RidgeRun could enhance our framework to support multimedia analysis and processing.

- Efficient
- Real-time operation
- Minimal CPU load





- DSP hardware accelerators
  - ✓ Optimized for DSP processing
  - ✓ Better performance than general purpose CPUs
  - ✗ Complex development environment
  - ✗ Fall short meeting demanding throughput like UHD video
- FPGA
  - ✓ Programmable logic
  - ✗ Limited availability on embedded systems
  - ✗ Non-existent on host machines
- GPU
  - ✓ Specialized processor for manipulating computer graphics
  - ✓ Performing image related processing efficiently
  - ✓ Hundreds of small units that may be executed concurrently



# What is GstGPGPU?



Its a RidgeRun developed framework that take advantage of the GPUs General Purpose processing capabilities to execute video/audio algorithms efficiently.

Design goals:

- Performance
- Simple Development
- Complexity abstraction





- Nvidia Tegra TX1/TX2
- Two 4K video streams at 60 frames per seconds processing them in the GPU





- iMX6 family
- Full HD video stream processing at 30 frame per seconds, in real time.





- GstCuda  
`https://developer.ridgerun.com/wiki/index.php?title=GstCUDA`
- GstOpenCL  
`https://developer.ridgerun.com/wiki/index.php?title=GStreamer\_OpenCL\_Bayer\_to\_RGB\_converter`
- Email: `support@ridgerun.com`





Thank you

