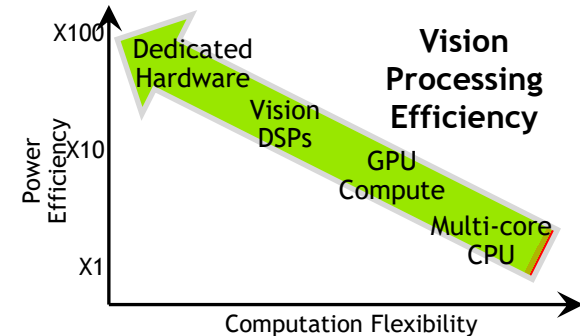
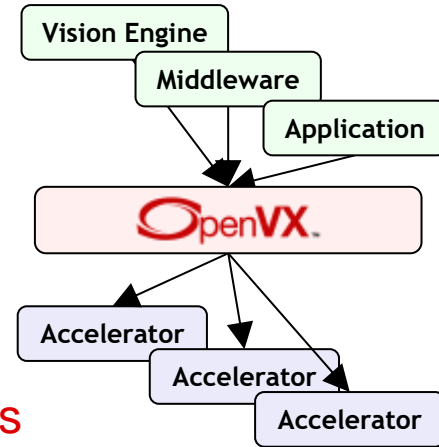


# Introduction to OpenVX: OpenVX Overview

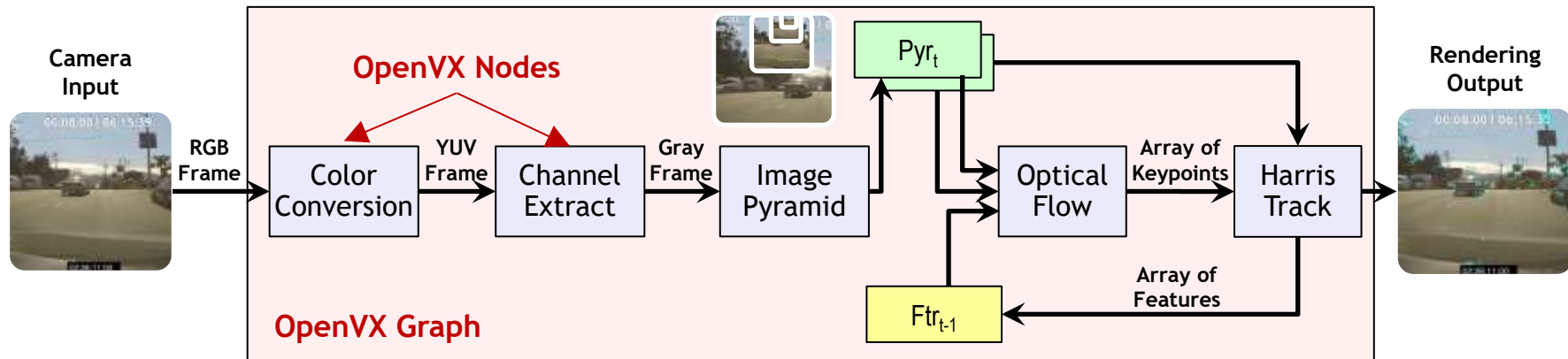
# OpenVX – low-power vision acceleration

- Higher-level abstraction API
  - Targeted at real-time mobile and embedded platforms
- Performance portability across diverse architectures
  - Multi-core CPUs, GPUs, DSPs, ISPs, Dedicated hardware, ...
- Extends portable vision acceleration to very low-power domains
  - Doesn't require high-power CPU/GPU Complex
  - Lower precision requirements than OpenCL



# OpenVX graphs

- OpenVX developers express a graph of data operations ('Nodes')
  - Nodes can be on any hardware or processor coded in any language
- Graphs can execute almost autonomously
  - Possible to minimize host interaction during frame-rate graph execution
- Graphs are the key to run-time optimization opportunities...



Feature Extraction Example Graph

# OpenVX™ framework efficiency

## Graph scheduling

Split the graph execution across the whole system: CPU / GPU / dedicated HW

Faster execution or lower power consumption

## Memory management

Abstract cache maintenance ops, avoid unnecessary memory mapping, reuse scratch memory

Abstracts multicore memory concerns, less allocation overhead

## Kernel merging

Replace a sub-graph with a single faster node

Better memory locality, less kernel launch overhead

## Data tiling

Execute a sub-graph at tile granularity instead of image granularity

Better use of data cache and local memory

# For more information

- Jacinto 7 Processor SDK Automotive download:  
<http://www.ti.com/tool/PROCESSOR-SDK-JACINTO-DRA8X-TDA4X>
- Processor SDK Linux Automotive (PSDKLA) user guide:  
[#{PSDKLA\\_INSTALL\\_PATH}/docs/linux/index.html](http://www.ti.com/tool/PROCESSOR-SDK-LINUX-AUTOMOTIVE-PSDKLA/docs/linux/index.html)
- Processor SDK RTOS Automotive (PSDKRA) user guide:  
[#{PSDKRA\\_INSTALL\\_PATH}/index.html](http://www.ti.com/tool/PROCESSOR-SDK-RTOS-AUTOMOTIVE-PSDKRA/index.html)
- For additional questions, refer to the E2E community forums:  
<https://e2e.ti.com/support/processors/f/791>



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# Khronos Connects Software to Silicon

Open Consortium creating  
ROYALTY-FREE, OPEN STANDARD  
APIs for hardware acceleration

Defining the roadmap for  
low-level silicon interfaces needed  
on every platform

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and vision processing

Rigorous specifications AND  
conformance tests for cross-  
vendor portability

*Acceleration APIs  
BY the Industry  
FOR the Industry*

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3D ASSET AUTHORING AND DELIVERY  
glTF, COLLADA

UNIFIED XR - VIRTUAL AND AUGMENTED REALITY  
OpenXR

PARALLEL COMPUTATION, VISION, MACHINE LEARNING AND INFERENCE  
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