



# SQ400 PROCESSOR IP

Image, Visual and Video Processor  
IP for HEVC Codec Design

## Key Features

- Low Power IP Optimized for Video Compression, Vision and Image Processing
- Scalable to Accommodate Resolutions from 720p to 4K UHD and Beyond
- Provides Video Encode, Decode, Pre & Post Processing and Display Rendering

## High Quality HEVC HD Codec

- Realtime Operation
- Fully HEVC Compliant
- Main-8 and Main-10 Profiles
- 720p30, 1080p30 to 4Kp60 Resolutions
- CBR, VBR, ABR Support
- Support for Tiles, Slices, Dependent Slices
- Support for Multiple Streams
- Coding Units 64x64, 32x32, 16x16 and 8x8

## Image Processing & Video Analytics

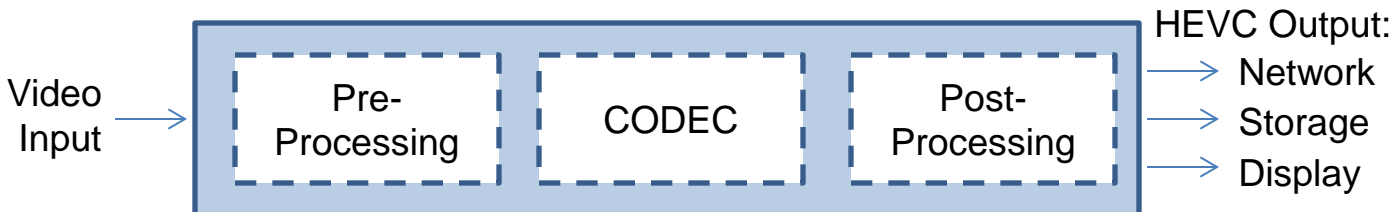
- Support for Noise Reduction, MCTF, Motion Detection, Face Detection & Object Tracking

## Key Benefits

- Very Low Power per Stream of Encoding
- Scalable Architecture Supports Single HD to Very High Density Encode Solutions
- Flexible Support for Variety of Resolutions, Multiple Streams, Proprietary Algorithms, Variable Quality / Compression Levels
- Upgradeable for Future Algorithmic Improvements

The Squid Systems SQ400 is a high performance Image, Vision and Video Processor offering excellent quality HEVC HD encode capability required in a range of applications such as broadcast head-end equipment, cloud based encode / transcode servers, DVRs, NVRs, STBs/OTTs, Video Conferencing servers, Home Media servers, Surveillance Cameras, and Automotive driver assistance systems.

The scalability & programmability of the SQ400 drives simultaneous encoding of multiple channels in HEVC or H.264 AVC formats, with excellent video pre-processing and post-processing. At the heart of SQ400 is an innovative multi-core configuration of the Squid high performance low power *Vivid* compute engine, which accelerated vision and image processing, and video compression. The SQ400 seamlessly supports multi-core configurations to power various resolution ranges and codec density solutions at very low power consumption.

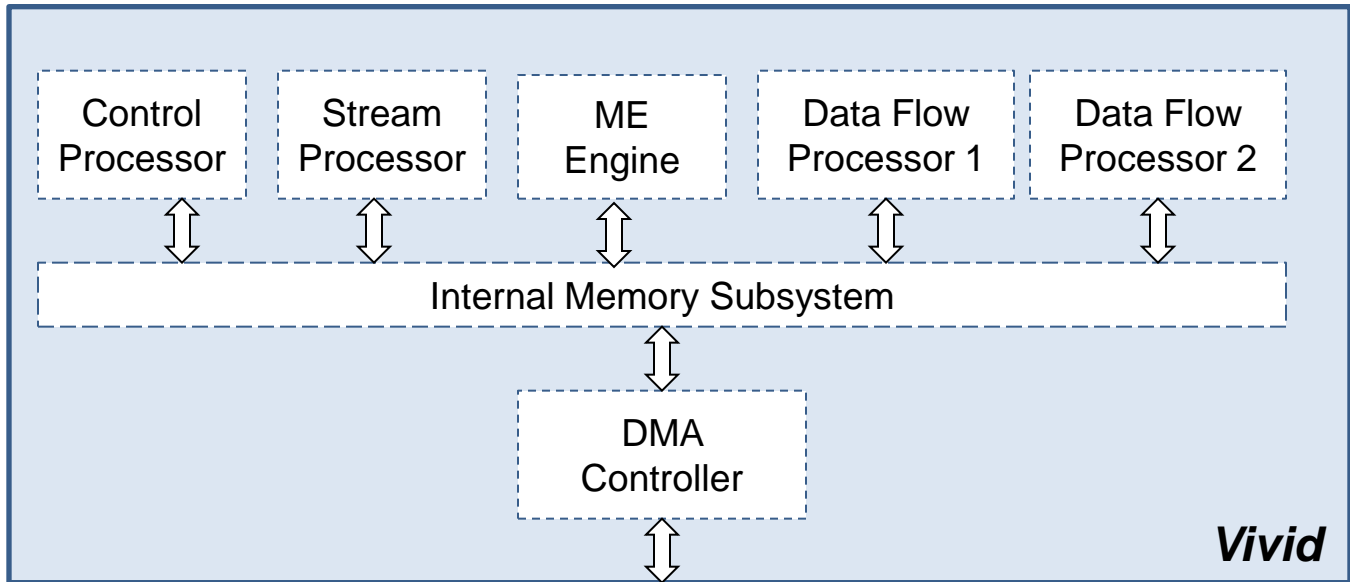


## Squid Encoder Software

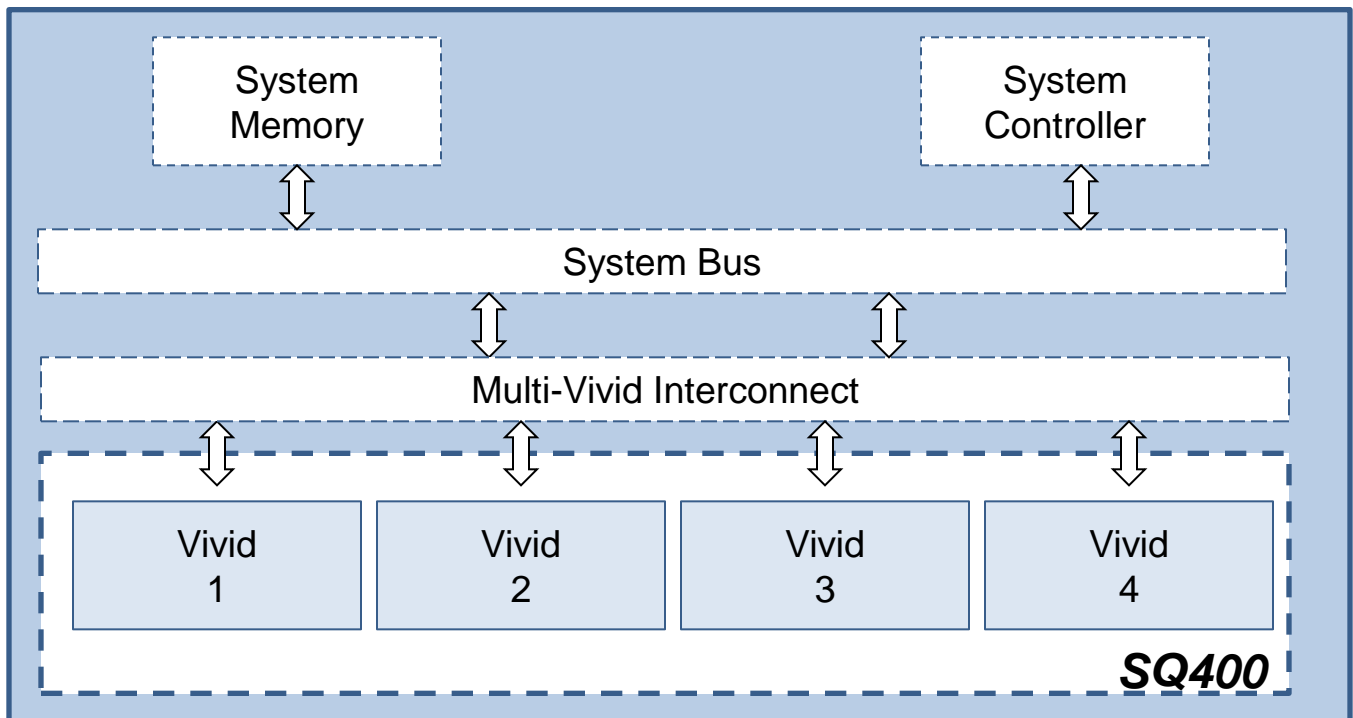
Squid HEVC encoder software supports encoding at multiple resolutions using proprietary technologies to achieve higher video quality at lower bit rates than competing solutions, bit rates that are comparable to the HM reference encoder. The Squid encoder is fully compliant with the H.265 standard. It is optimized for performance on Intel® processors and Squid SQ400 processor cores.

# SQ400 PROCESSOR CORE

Image, Visual and Video Processor IP for  
HEVC Codec Design



Each Vivid processor core has high performance data flow processors, a stream processor, a Motion Estimation accelerator, a control processor and a DMA controller. This allows the Vivid core to balance control and data flow performance for highly demanding video, vision and image processing tasks.



The SQ400 is a scalable architecture using multiple Vivid processor cores. Inter-core communications are via DMA control to minimize system bandwidth requirements. Standard SoC bus protocols simplify integration.