



Surround View Camera Systems

AMF-AUT-T0499

Ray Marshall

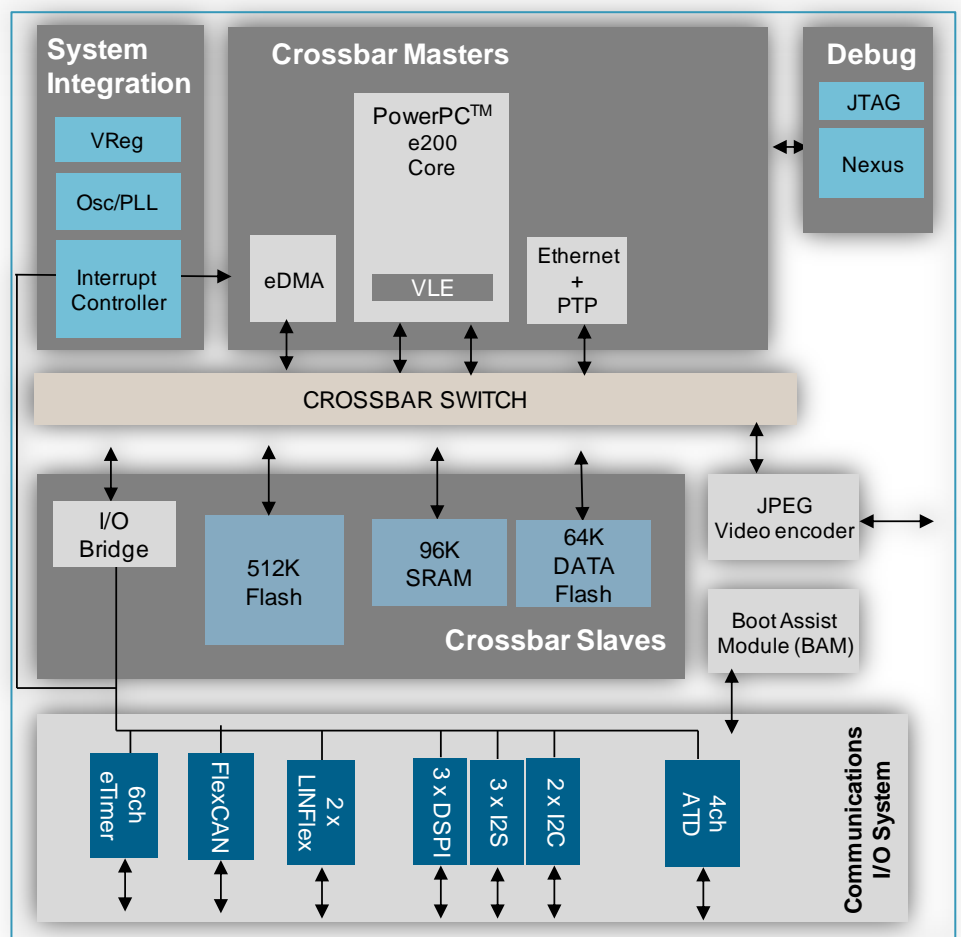


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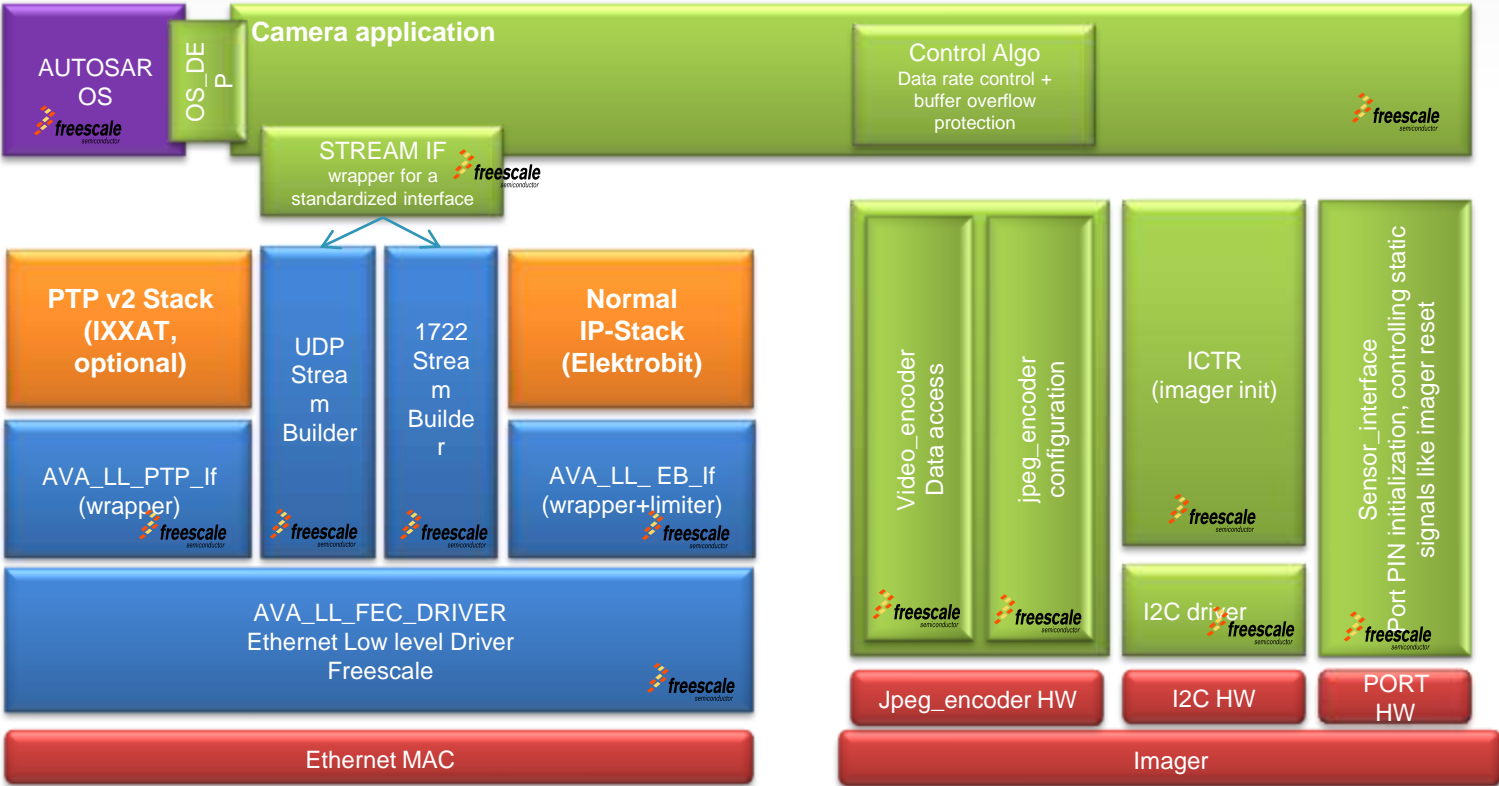
MPC5604E – Salsa



- 64MHz e200 Core
- M-JPEG Video Encoder
- Real-Time Ethernet
- 512K Flash
- 64K Data Flash
- 96K SRAM

... samples available

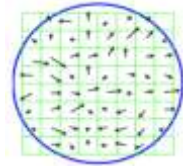
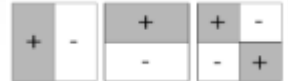
Freescale Salsa Camera Software



- Purple : AUTOSAR OS 3.0, licensable from Freescale
- Green : Camera Application Software, licensable from Freescale
- Blue: Ethernet Streaming Software, licensable from Freescale
- Orange: Off the shelf Software, licensable from 3rd party (Elektrobit, IXXAT)
- Red: Hardware

Object detection

- **State of the art object detection uses e.g.**
 - Haar wavelet features (e.g. Viola & Jones)
 - Histogram of oriented gradients (HOG) descriptors
 - Support Vector Machines or AdaBoost for classification



- **Requirements for video compression**
 - 12bit per YUV component for difficult light conditions
 - Algorithms react different on MJPEG and H.264 artifacts: no winner
 - Degradation negligible for high quality factors (e.g. 1:5 compression)

- **Algorithms can be optimized for SW implementation**

Separate system for high-speed forward-looking as fish-eye lens is suboptimal for faraway objects

- Objects have limited speed difference relative to car
- Object detection range limited to short distance



