MJPEG Video Streaming over Wi-Fi using MiniZed

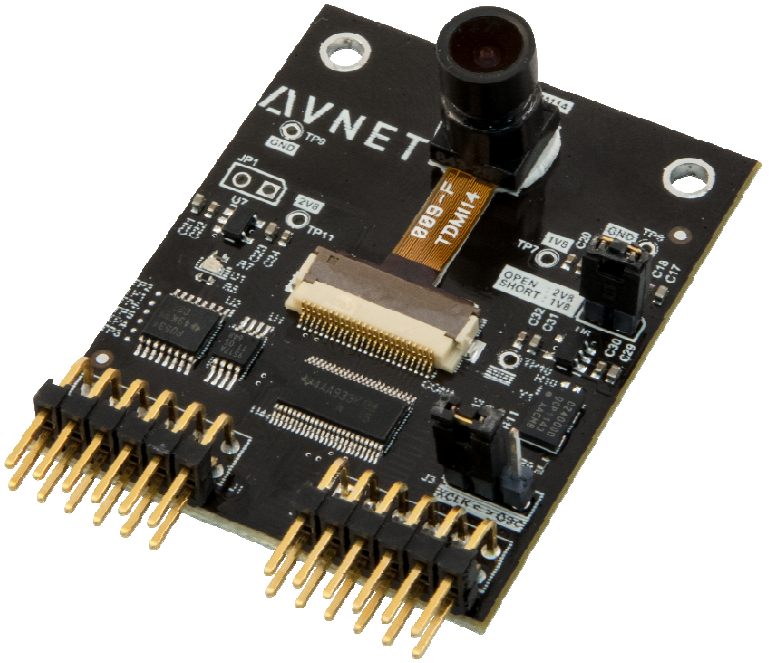
TDNext Camera Kit

MiniZed Reference Design by Watson Chow

http://zedboard.org/product/tdnext-126mpixel-pmod-camera-kit

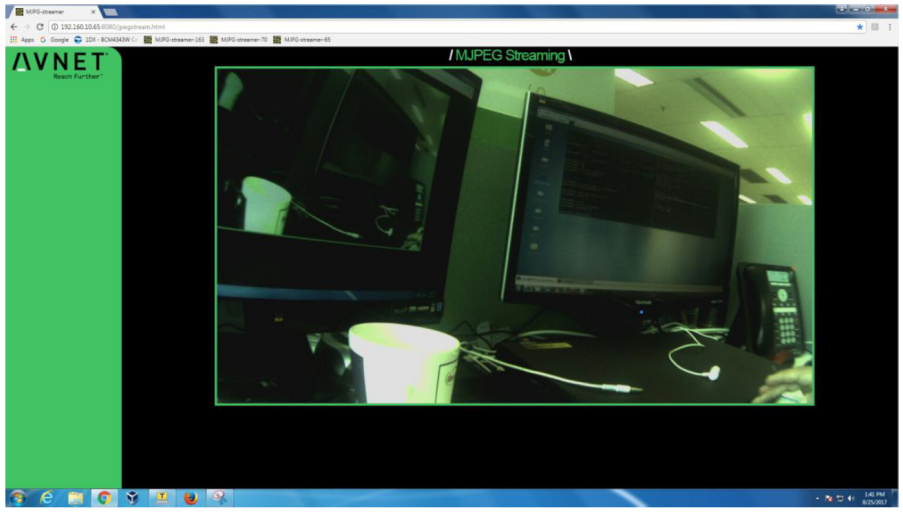
- Dual Pmod camera module
- ON Semiconductor MT9M114
- 720P resolution (1296 x 976 @ 30fps)
- 8/10 bits CMOS parallel Interface

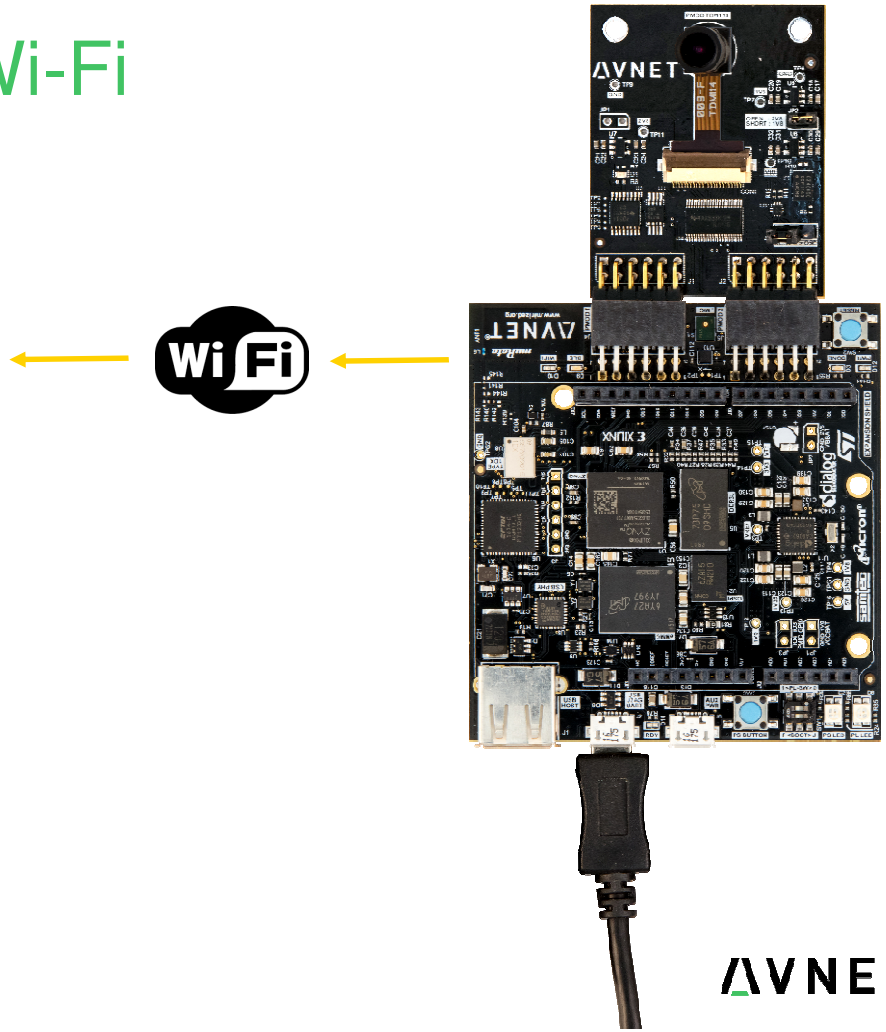
Questions: Mario.Bergeron@Avnet.com



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MJPEG streaming over Wi-Fi

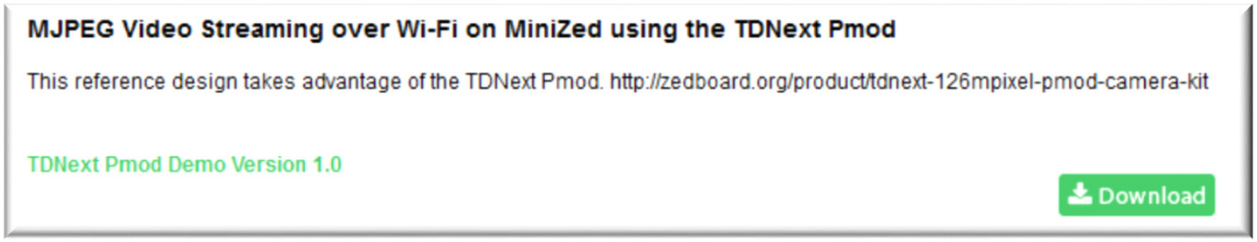




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Reference Design on minized.org

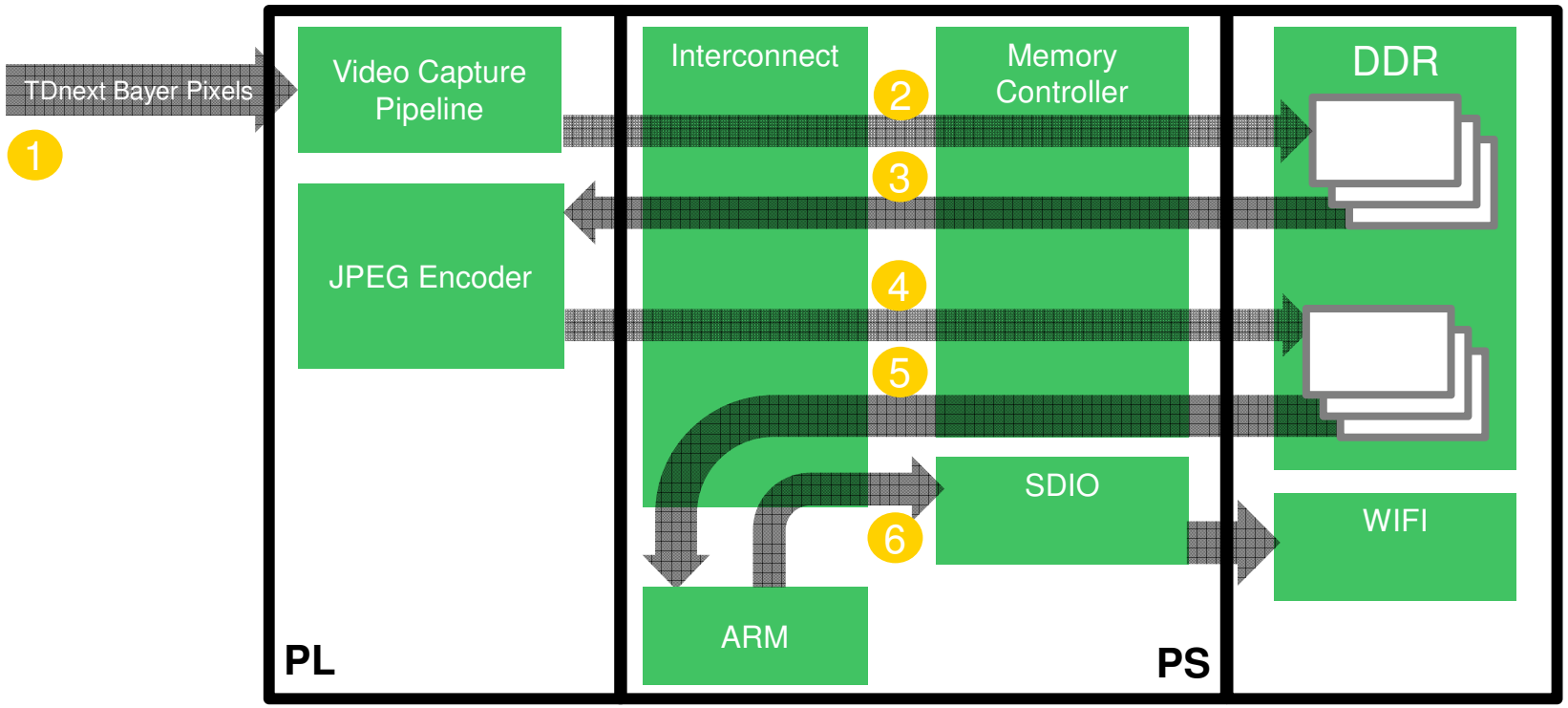
http://zedboard.org/product/minized under Reference Designs



- **Document** for
  - ✓ Programming MiniZed
  - ✓ Setting it up for your Wi-Fi network & browser
  - ✓ Running your demo
- **Vivado project** for the reference design PL
- **Software**: PetaLinux 2016.4 BSP

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MJPEG Streaming Block Diagram



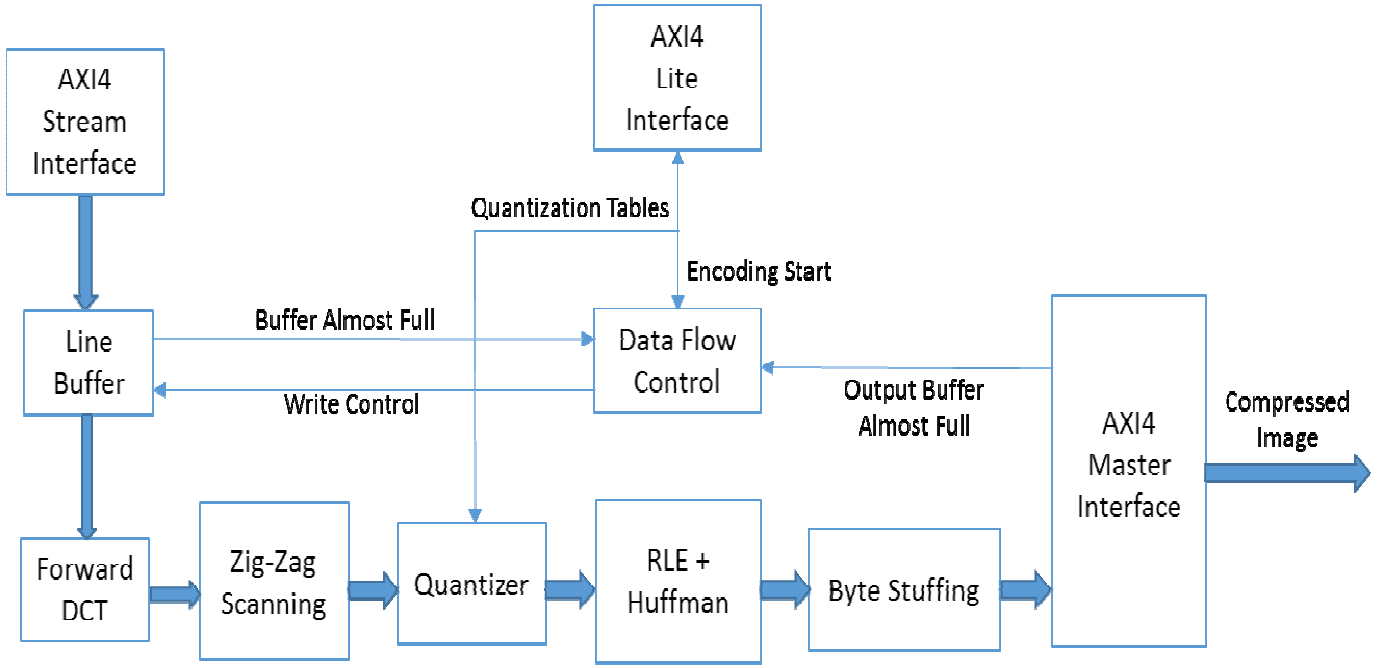
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MJPEG Streaming Block Diagram Steps

1	TDnext bayer format data stream
2	VDMA transfers image frame to capture buffer pool
3	VDMA transfers image frame to JPEG Encoder
4	JPEG Encoder transfers compressed image to image buffer pool
5	ARM grabs image frame from image buffer pool
6	ARM packs data into http packets and passes to WIFI module

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IP Block Diagram



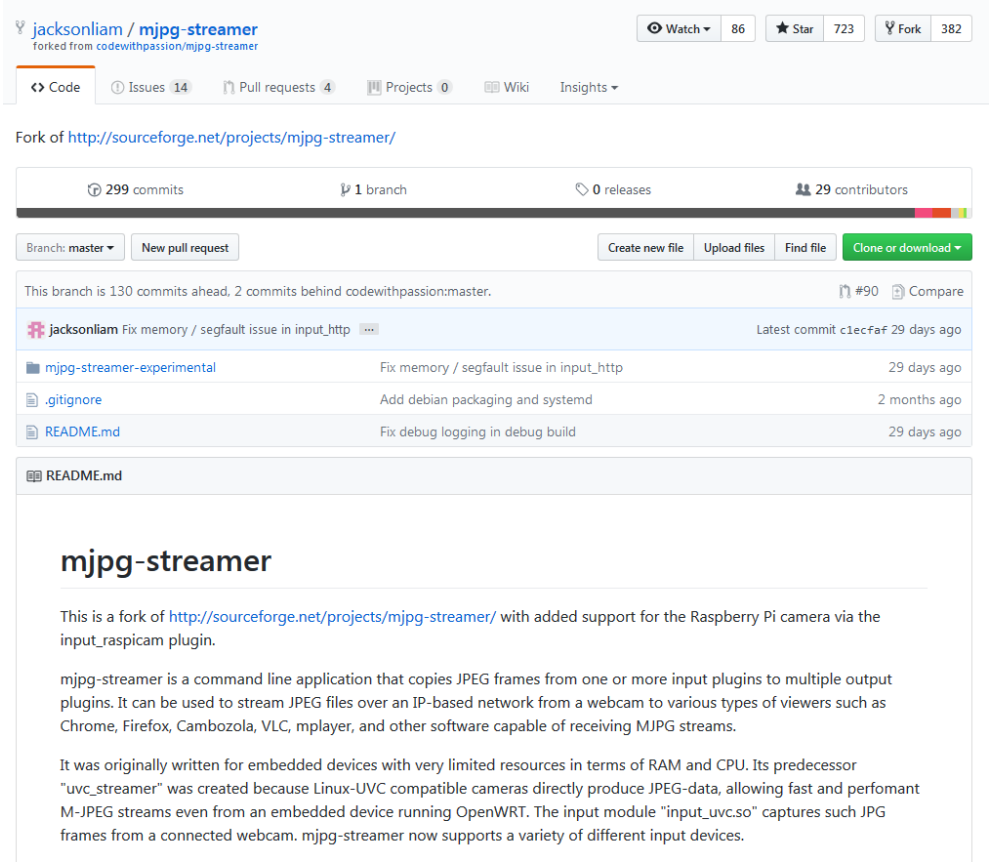
Questions: Watson Chow (Watson.Chow@Avnet.com) or Mario Bergeron (Mario.Bergeron@Avnet.com)

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Software

Based on the **open source** MJPG-streamer code

https://github.com/jacksonliam/mjpg-streamer



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Performance

Performance

140MHz (-1 device) clock speed

~3 clock cycles/pixel

Frame rate

- 1280x1024 : ~35 fps
- 1920x1080 : ~22 fps

Scalability

Support higher frame rate / resolution with multiple cores

- e.g. >30 fps 1080P with 2 cores



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