Using ADV212 in RAW Mode

The ADV212 offers a range of operating modes allowing it to be used in many different applications and configurations. RAW mode is often looked at for use in applications that aren't pure video. However, there are a number of issues that must be addressed in system design and these issues may not be immediately obvious. This paper discusses the system design implications that must be addressed when using RAW mode.

RAW mode is appropriate for low frame rate still imagery when HIPI mode cannot be used. **For other applications, it is strongly recommended to use CUSTOM mode with synchs and predictable timings.** CUSTOM mode will typically offer better throughput, easier implementation, and more predictability

When using RAW mode, the system designer must be aware of or insure the following:

- a MINIMUM of 10 lines of buffering must be implemented.
- There is a "dead zone" between the last active pixel of one frame and the VRDY pulse that follows. The VRDY pulse will occur 4-8 line times after the last active pixel. **Any pixels or control signals that occur in the "dead zone" are ignored and lost.**
- Timings are content dependent and, as a result, there is no guaranteed spec for when and how long VRDY might be de-asserted. Typically, the VRDY pulse occurs 4-8 line times after the last pixel of a frame is received.
- The VFRM pulse must not occur until after the VRDY "pulse"

Figure 1 shows an example of good VFRM timing in relation to VRDY. Figure 2 shows an example of bad VFRM timing where data will be lost.

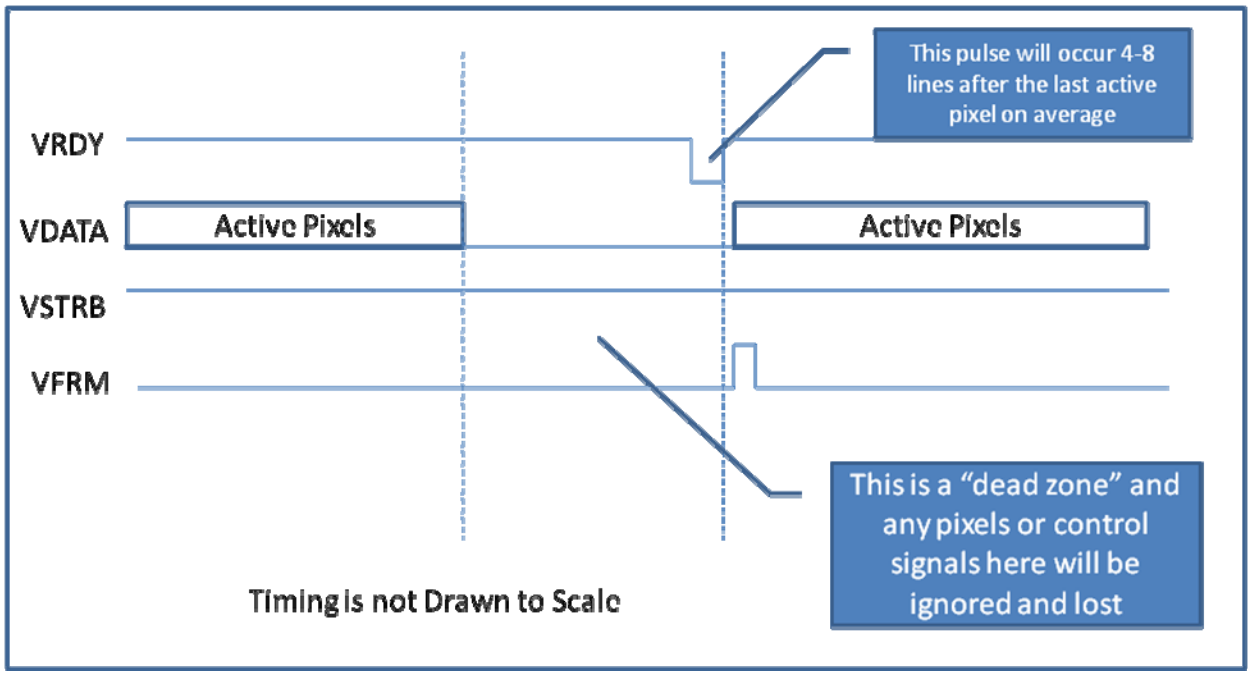

Figure 1 Example of Good VFRM Timing

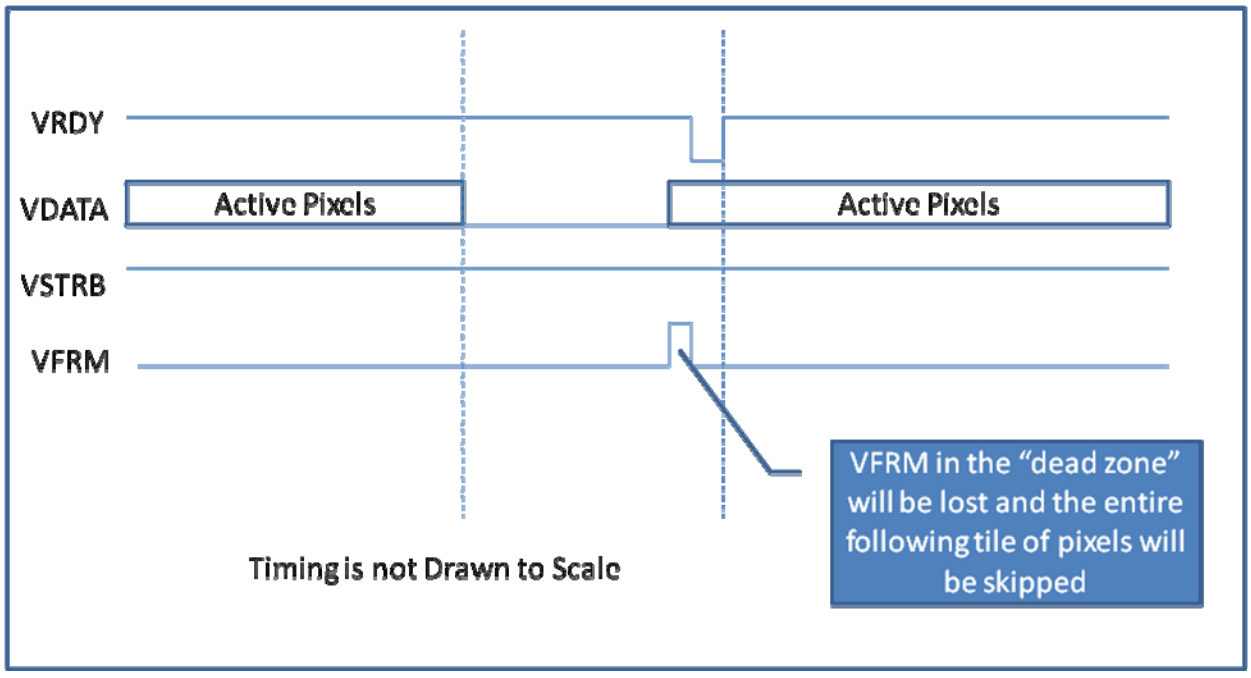

Figure 2 Example of Bad VFRM timing

Summary

System designers using the ADV212 have experienced problems when trying to maximize throughput when using RAW mode. In most cases, it is strongly recommended to use CUSTOM mode instead of RAW mode because custom mode can be easier to use while maximizing throughput. Systems designers that are using RAW mode must implement appropriate buffering and ensure the proper relationship of VFRM.