Use Case Guide

Feb 2012

Custom - Use Case Guide

1.1.1

1.1.2 ABSTRACT

This document explains the capabilities and limitations of the below use-cases of DVR-RDK

- 2xD1 @ 30 fps Enc
- 1xD1 + 1xD1 (4xCIF mosaiced to 1xD1) @ 30 fps Enc
- 1xD1 @ 30 fps Dec

These use-cases are targeted for DM814x and DM816x SoC from TI (would be ported to DM8107 in future)

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2 Introduction

This document has requirements and data flows for custom use cases. Custom use cases are simple use case to refer to start building simple encode/decode link chains application

2.1 Summary of Use-Cases

Product	Description
2D1 Encode (DM8148/DM8168)	Enc: 2Ch D1 30fps
2D1 Encode (DM8148/DM8168	Enc: 2ChD1 at 30 fps (1Ch D1 + 4Ch CIF SwMs to D1)
1D1 Decode	Dec: 1Ch D1 @ 30 fps

2.2 Resolutions

NTSC Resolutions	NTSC – 30fps	PAL – 25fps
D1	704x480	704x576

3 Features

	2D1 Enc	1D1 + 1D1 (4xCIF mosaicing) Enc	1 D1 DEC
System			
DM8148 Part Number	CE1 (DM8148-Mid) Si Rev 2.1	CE1 (DM8148-Mid) Si Rev 2.1	CE2 (DM8148-High) Si Rev 2.1
System Clocks	ARM: 720Mhz	720Mhz	720Mhz
	M3: 240Mhz	240Mhz	240Mhz
	DSP: 750Mhz	750Mhz	750-850Mhz * * NOT FINAL
	DDR: 440Mhz	480Mhz	533Mhz
	IVA-HD: 410Mhz	410Mhz	450Mhz * * NOT FINAL
	HDVPSS: 200Mhz	200Mhz	200Mhz
Default U Boot config	NO	YES	NO
DDR	512MB	512MB	512MB
Linux Memory	128MB	128MB	128MB
Capture			
Number of Video decoders	1x TVP5158	2x TVP5158	x
Video decoder Mode	8-bit 4Ch D1 pixel mux mode		
Input resolutions	• Input can be NTSC or PAL • No mixed NTSC/PAL • No dynamic switching between NTSC and PAL		
Other notes	• Capture is in D1 mode since. Input to Live Preview uses D1.		
Encode			
Primary stream (max resolution)	2CH D1 H264 30fps	2CH D1 H264 30fps	x
Use-Case switching			
Enable/disable run	Seam-less	Seam-less	x

time enc channel			
Decode			
Decode	x	x	1CH D1 @ 30 fps
Enable/disable decode channel run time	x	x	Seam-less
De-interlacing			
Primary stream	DEI enabled	DEI enabled	x
Encode Parameters			
Encoding input type	Progressive		
Primary stream codec	H264 HP Profile Level 3.1		
Sub-stream codec	H264 HP Profile Level 3.1		
Primary stream resolution	D1		
Frame-rate control	1fps to 30fps in units of 1fps		
Bit-rate control	16Kbps to 6Mbps		
QP control	H264: I-frame QP setting available, P-frame QP setting available		
RC Algorithm control	CBR VBR		
IP Ratio control	IP Ratio from 1..100		
Force I-frame Control	YES		
Display			
Display 2	SD Display: On-Chip SDDAC		
Tied VENCs	SD Display can show the same or different content as HD Display BUT at NTSC or PAL timing		
Display Resolutions	**SD Display:** NTSC – 720x240 @ 60Hz – interlaced PAL – 720x288 @ 50Hz – interlaced		
Display Layouts	○ 1x1 – All CH being showed, deinterlaced at 30fps		

SD Display	○ 1x1
Live preview resolution	1x1 Layout: D1
Live preview frame-rate	1x1 Layout: 30fps
Decode channels can be mixed with live channels	YES
Other requirements	
Boot time	- Power ON to boot logo – 5-10secs - Power ON to Display live preview – 30-45 secs
Networking	Linux drivers provided, application to be taken care by customer
USB	Linux drivers provided, application to be taken care by customer
SATA	1x SATA. Port Multiplier can be used. Linux drivers provided, application to be taken care by customer

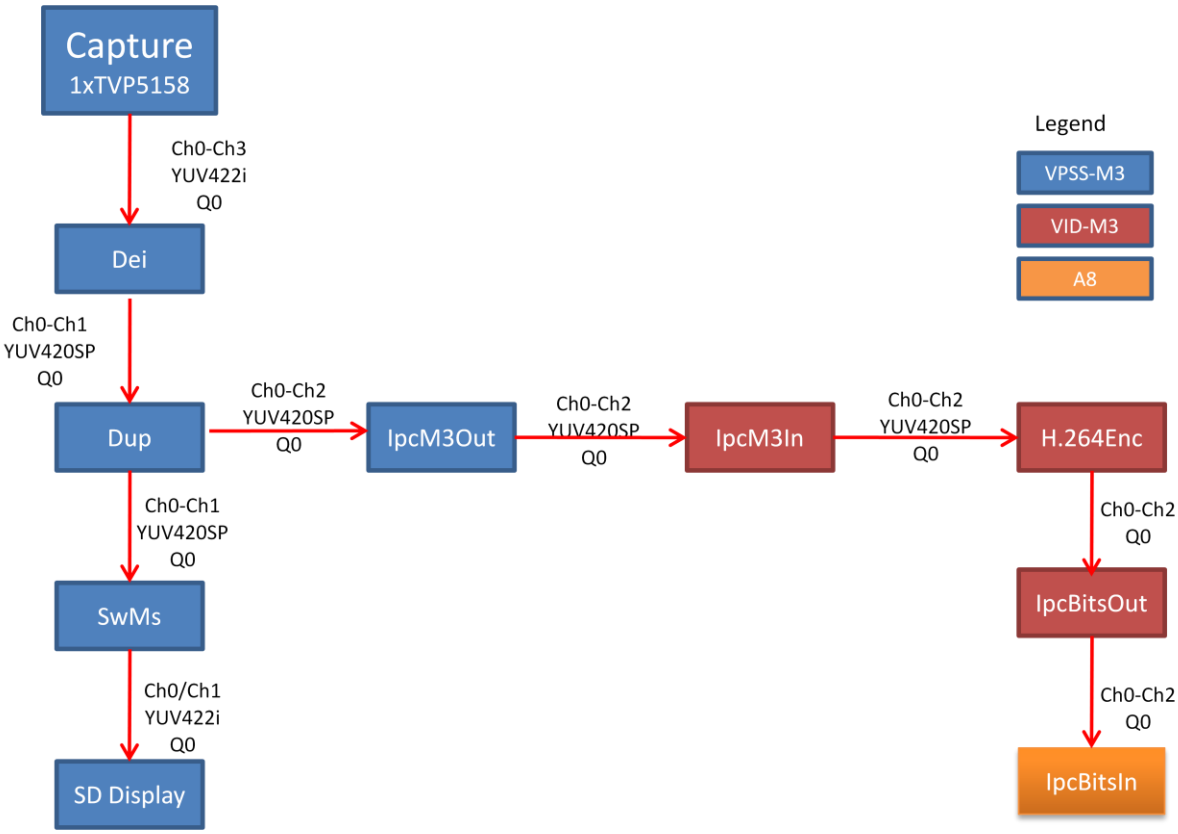
4 Limitations

These data flows have the following limitations / constraints

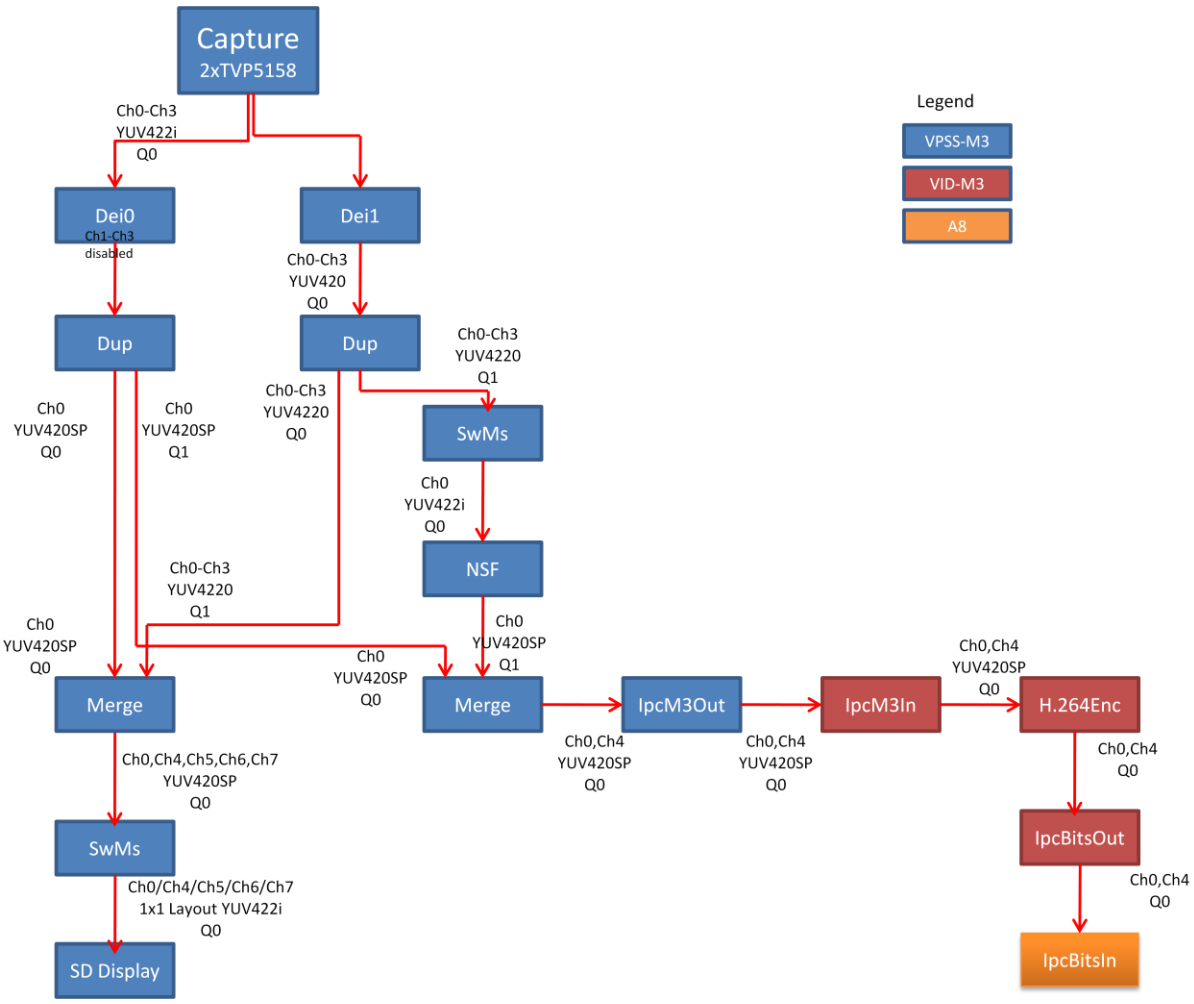
- These data flows are implemented for DM814x and TI816x SoC.
  - These will be ported to DM8107 SoC in future.
  - These could be made to work on DM8168 but are NOT ported in current codebase.

5 Custom Demos Additional Details

5.1 Data Flow – 2xD1 Enc



5.2 Data Flow – 1xD1 + 1xD1 (4xCIF Mosaiced) Enc



5.3 Data Flow – 1xD1 Dec