

Weekly Report – 26 Feb 2018

PWM Generation using DSP

Digital Input / Output

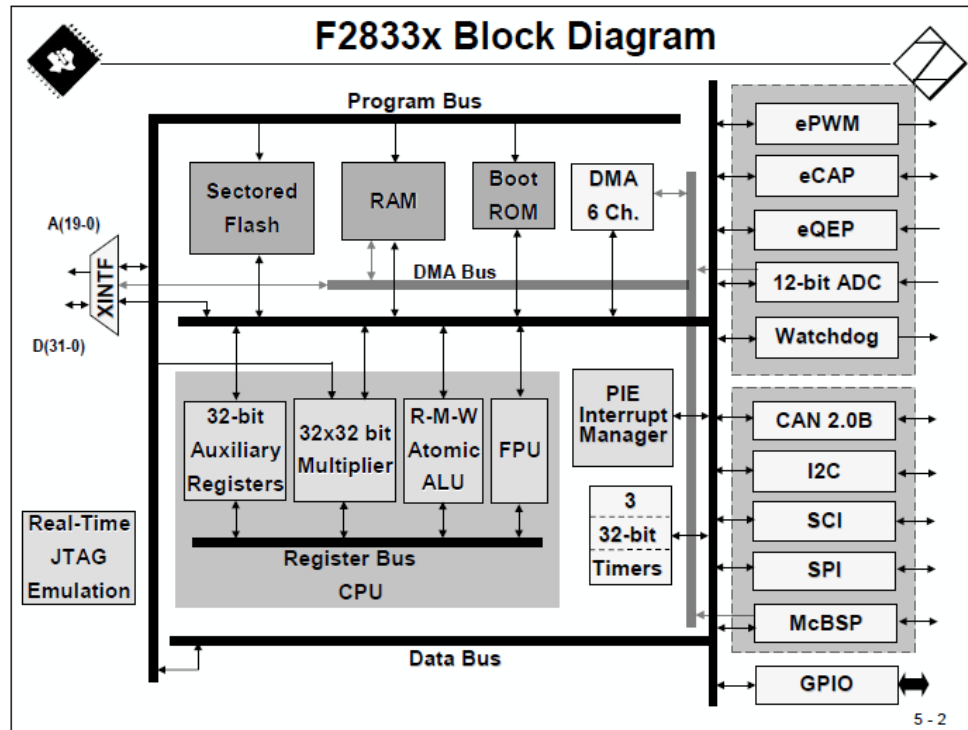


Figure 1: General Block Diagram of uP

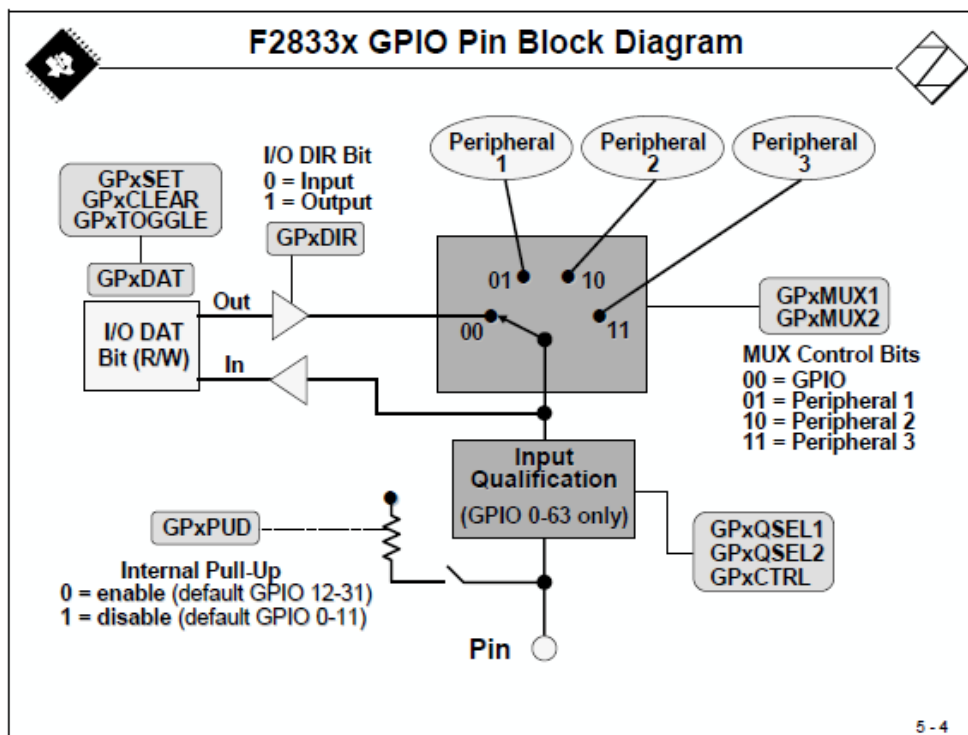


Figure 2: GPIO Pin Block Diagram

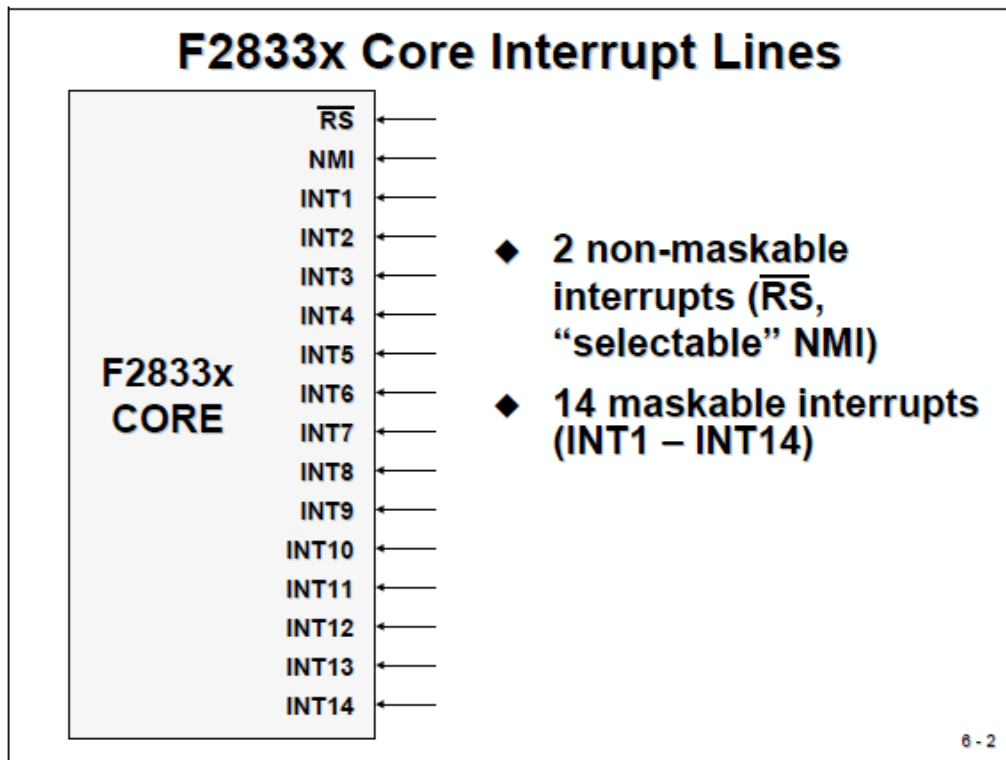


Figure 3: Interrupt Lines

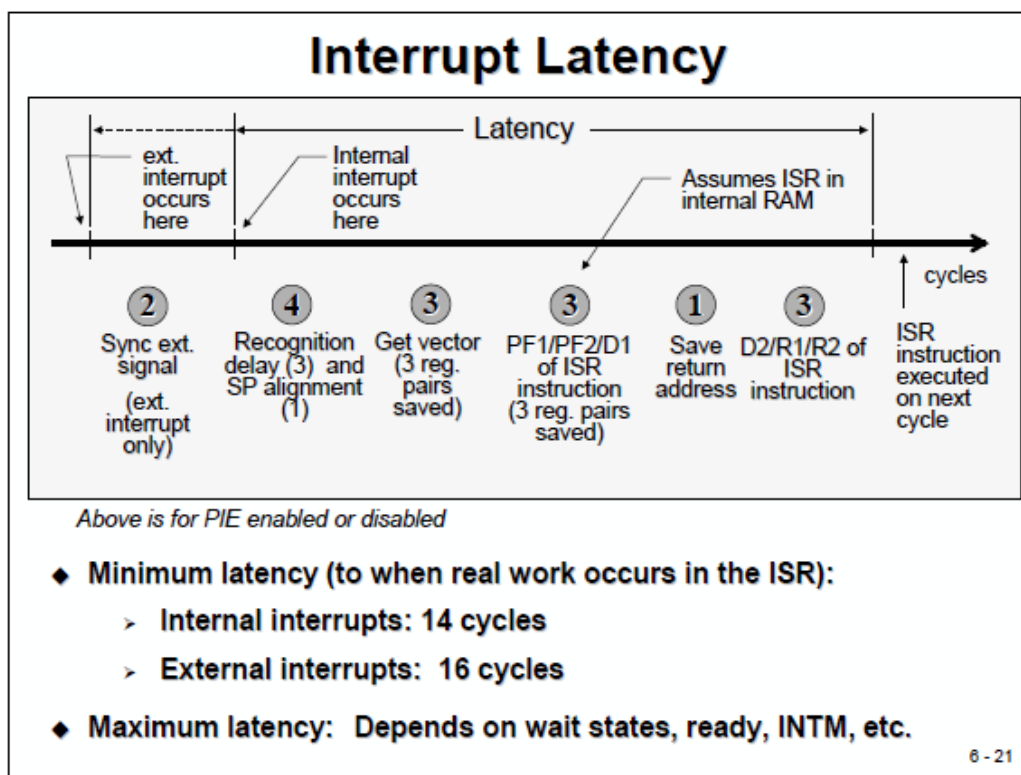


Figure 4: Interrupt Loop

PWM Generation

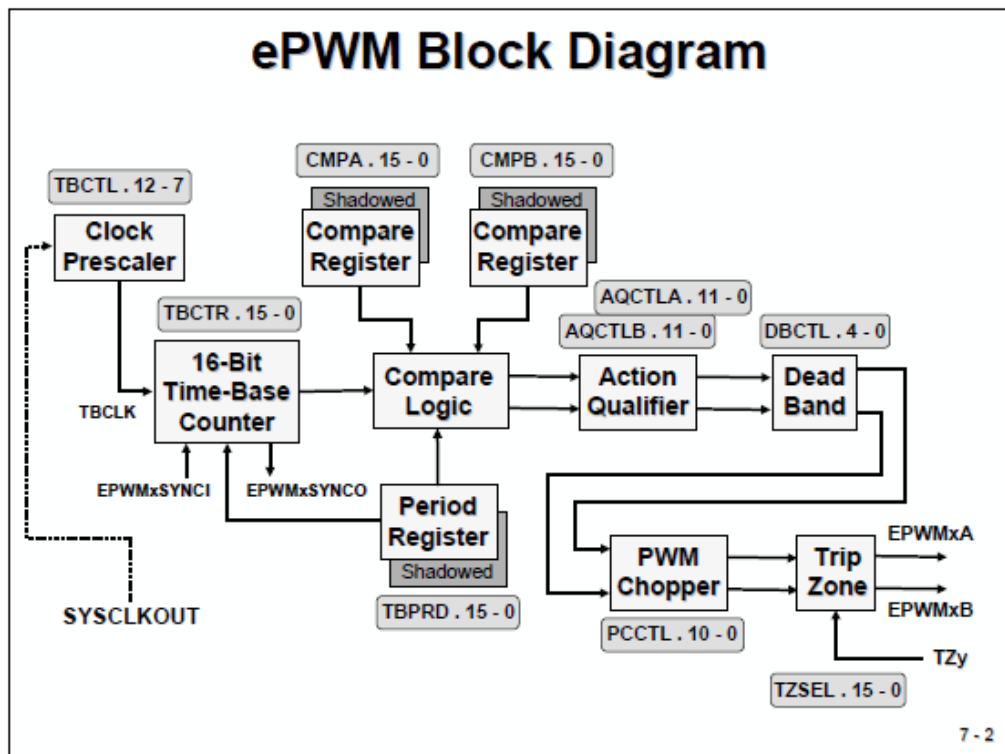


Figure 5: ePWM Block Diagram

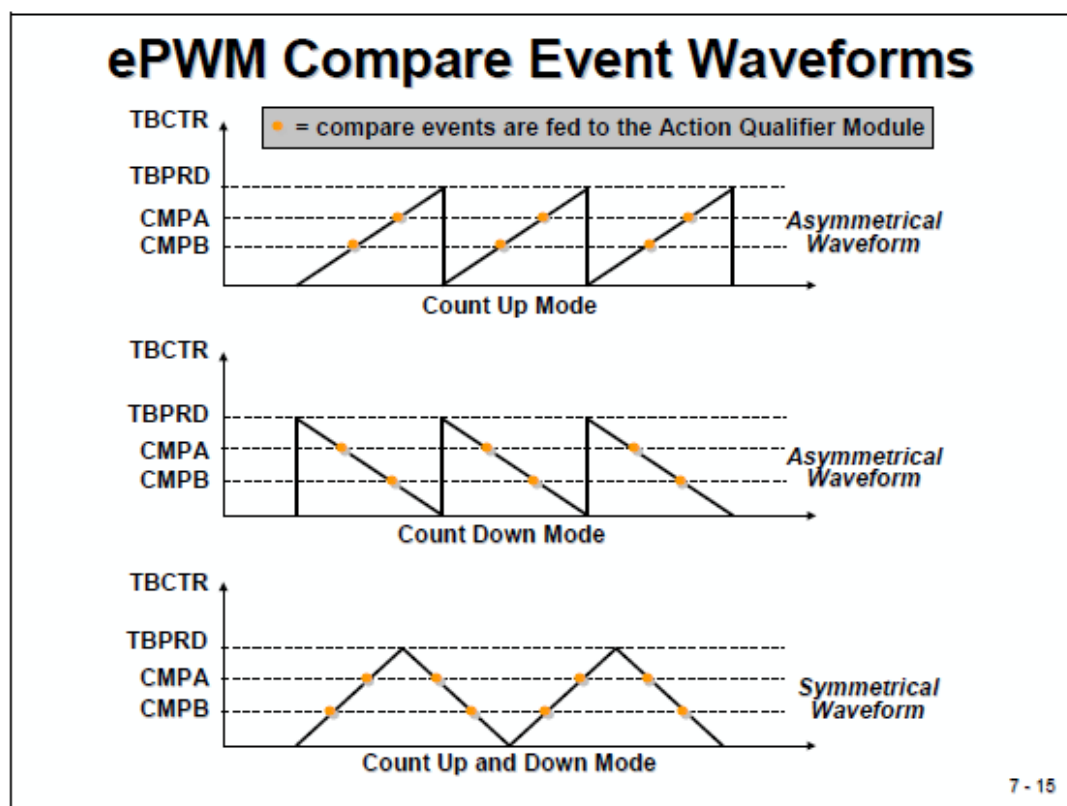


Figure 6: Timer Counter Modes

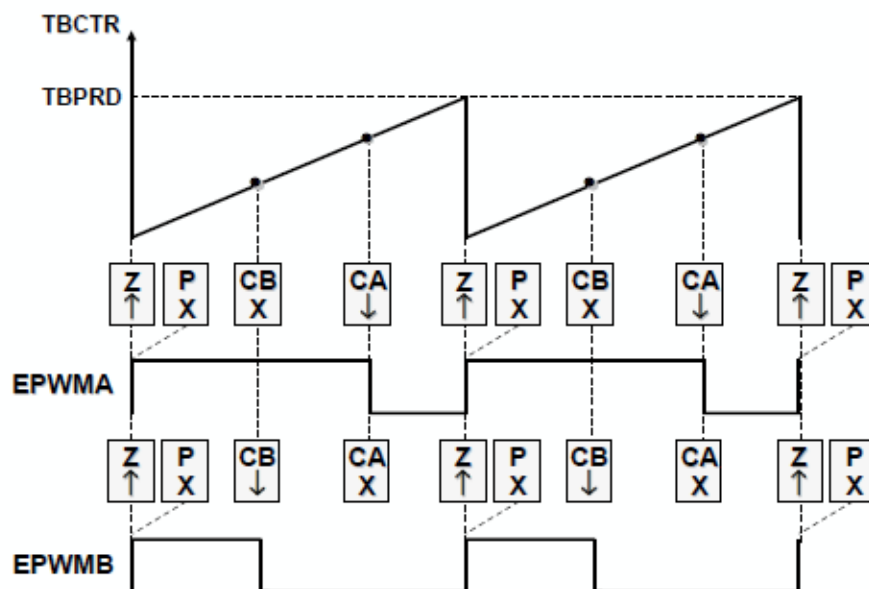
ePWM Action Qualifier Actions

S/W Force	Time-Base Counter equals:				EPWM Output Actions
	Zero	CMPA	CMPB	TBPRD	
SW X	Z X	CA X	CB X	P X	Do Nothing
SW ↓	Z ↓	CA ↓	CB ↓	P ↓	Clear Low
SW ↑	Z ↑	CA ↑	CB ↑	P ↑	Set High
SW T	Z T	CA T	CB T	P T	Toggle

7 - 19

Figure 7: Action Qualifier

Independent Modulation on EPWMA / B



7 - 20

Figure 8: How action qualifier works

Figure 2-29. Dead-Band Waveforms for Typical Cases ($0\% < \text{Duty} < 100\%$)

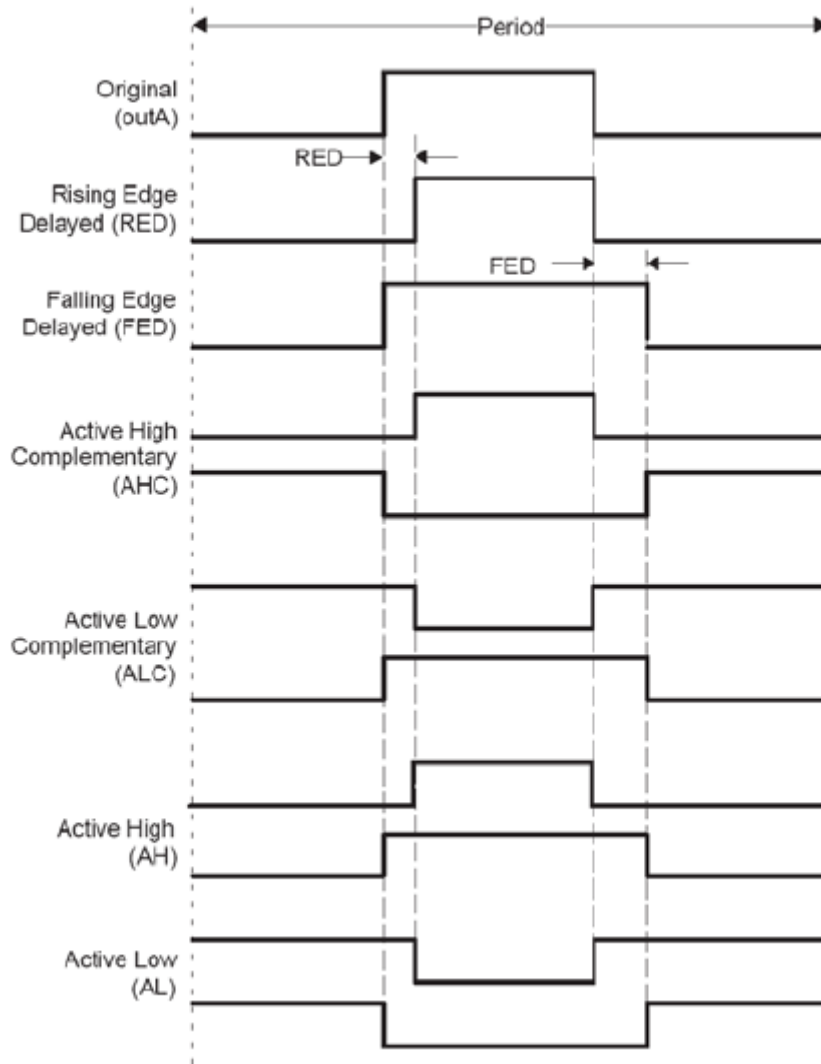


Figure 9: Dead Time

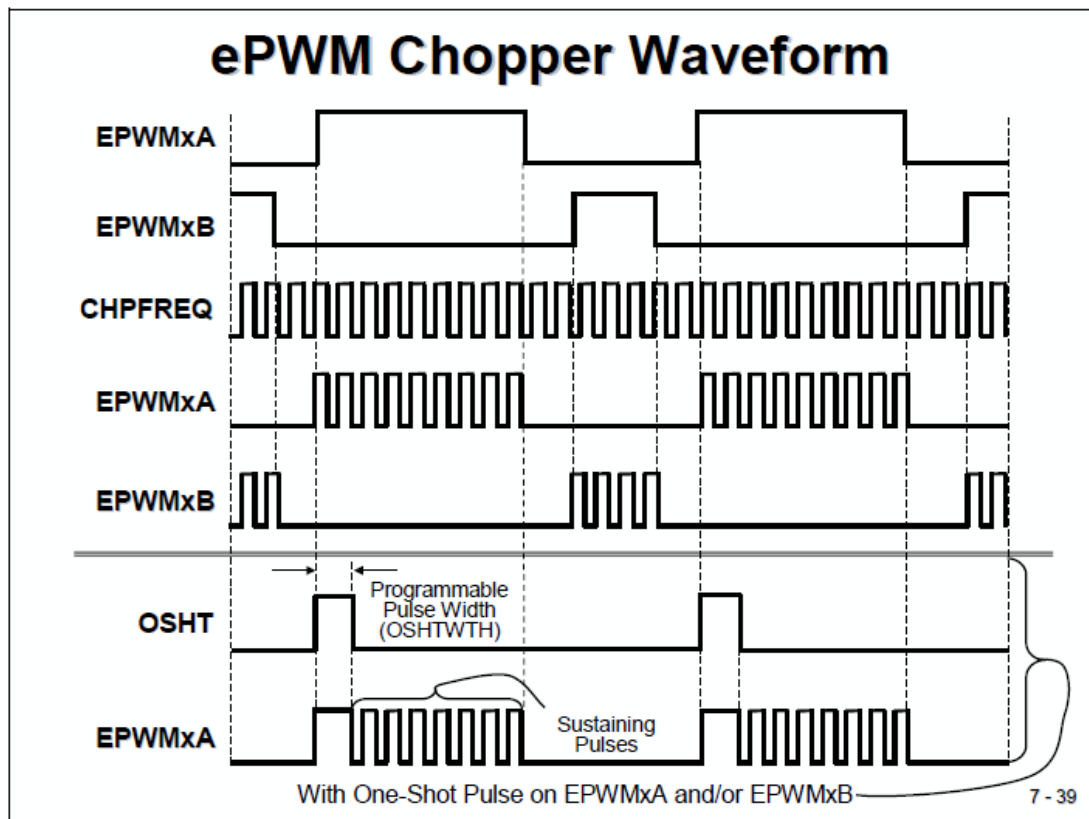


Figure 10: PWM Chopper

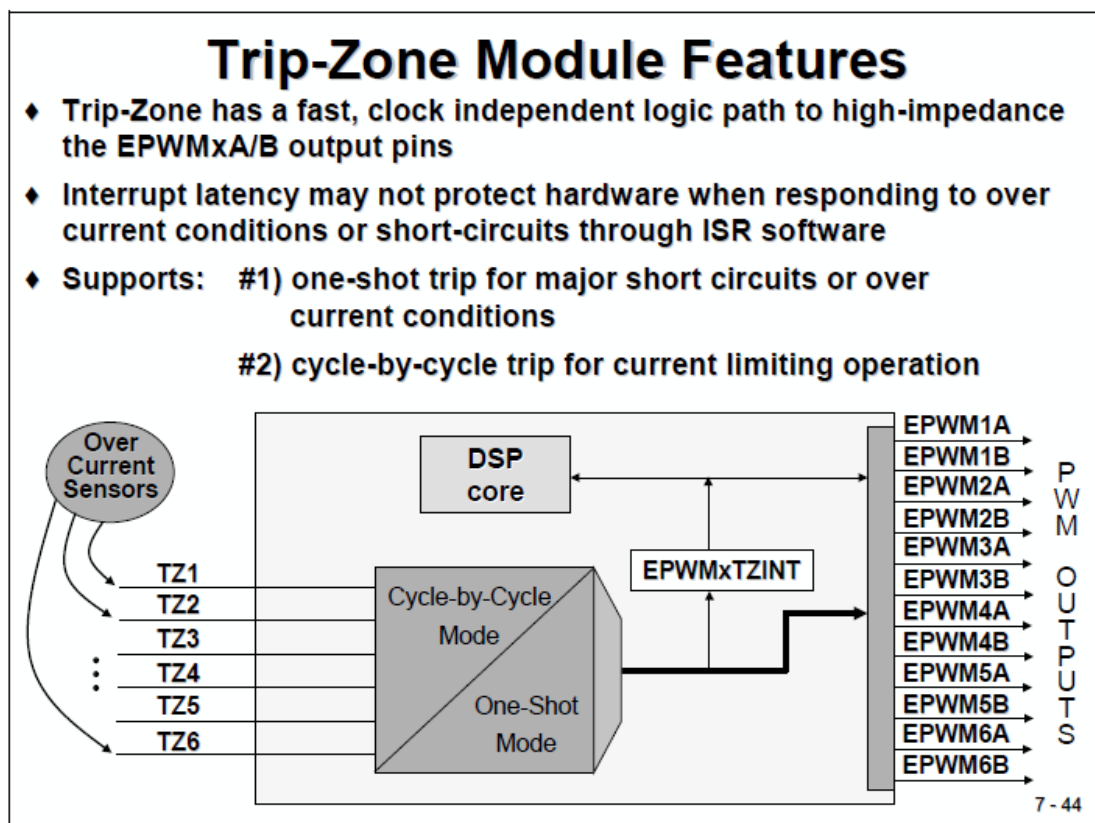


Figure 11: Trip Zone

ePWM Event-Trigger Interrupts and SOC

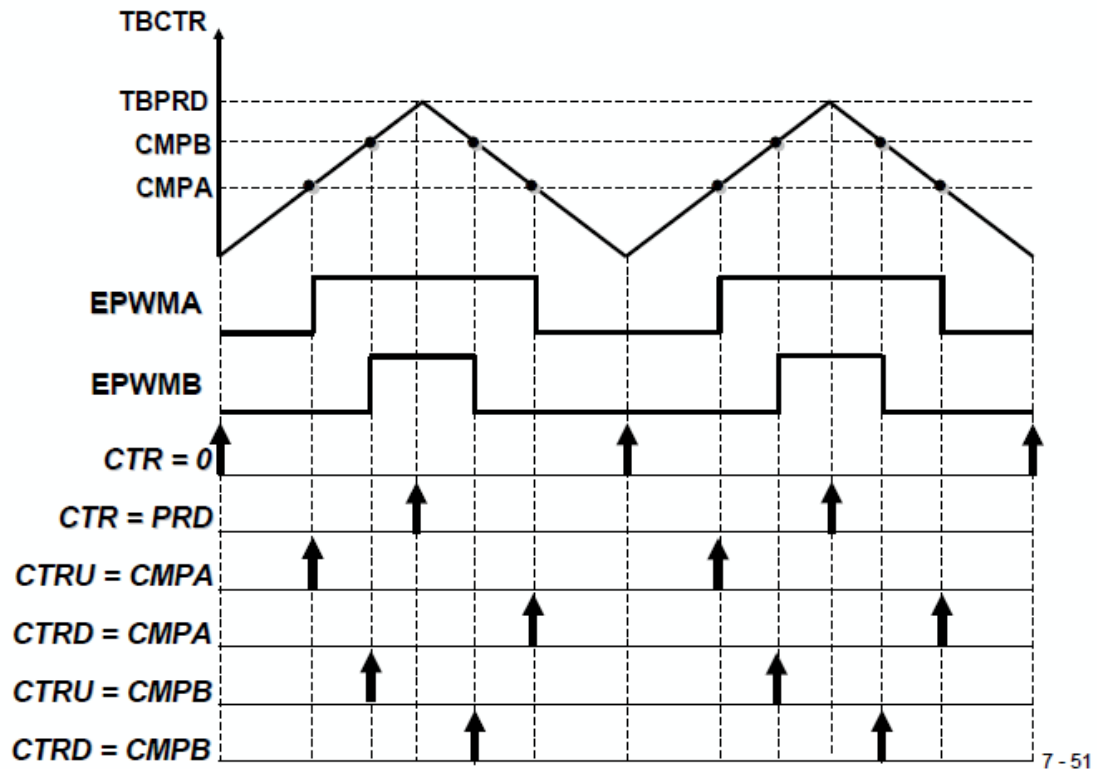


Figure 12: ePWM Interrupt

GaN Test

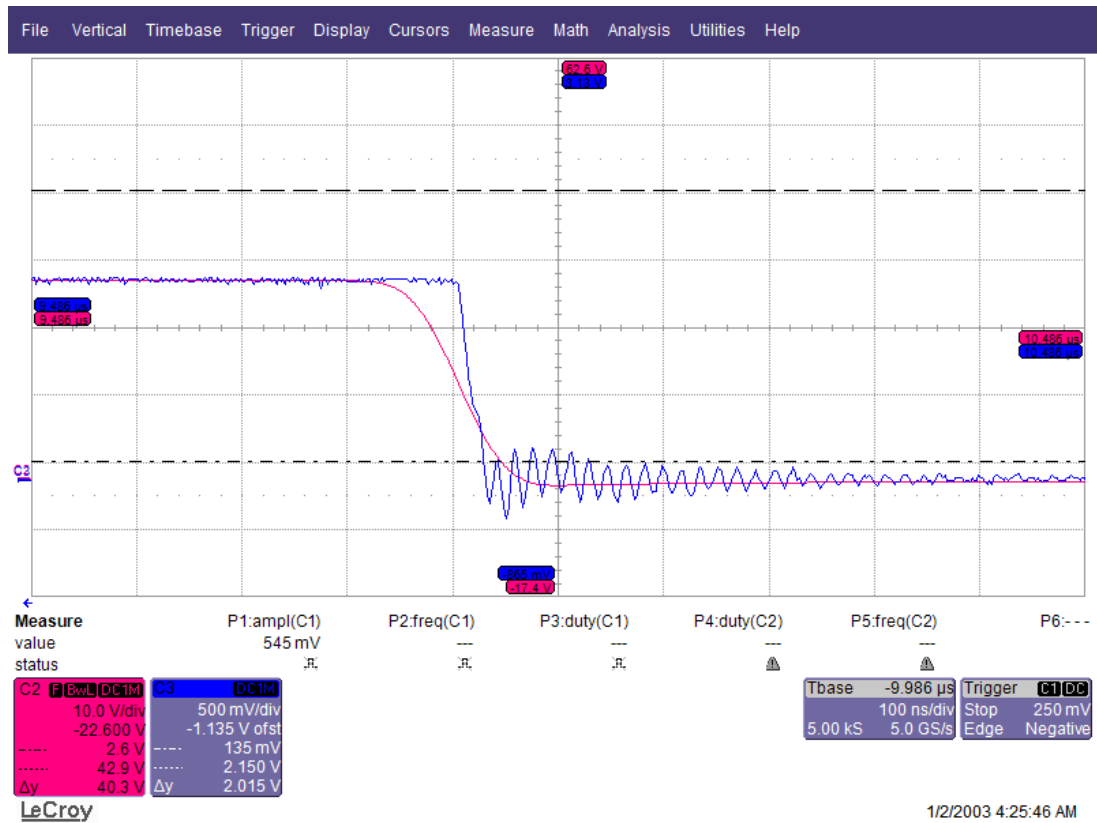


Figure 13: Blue and Red are both V_{ds} of Bottom Switch

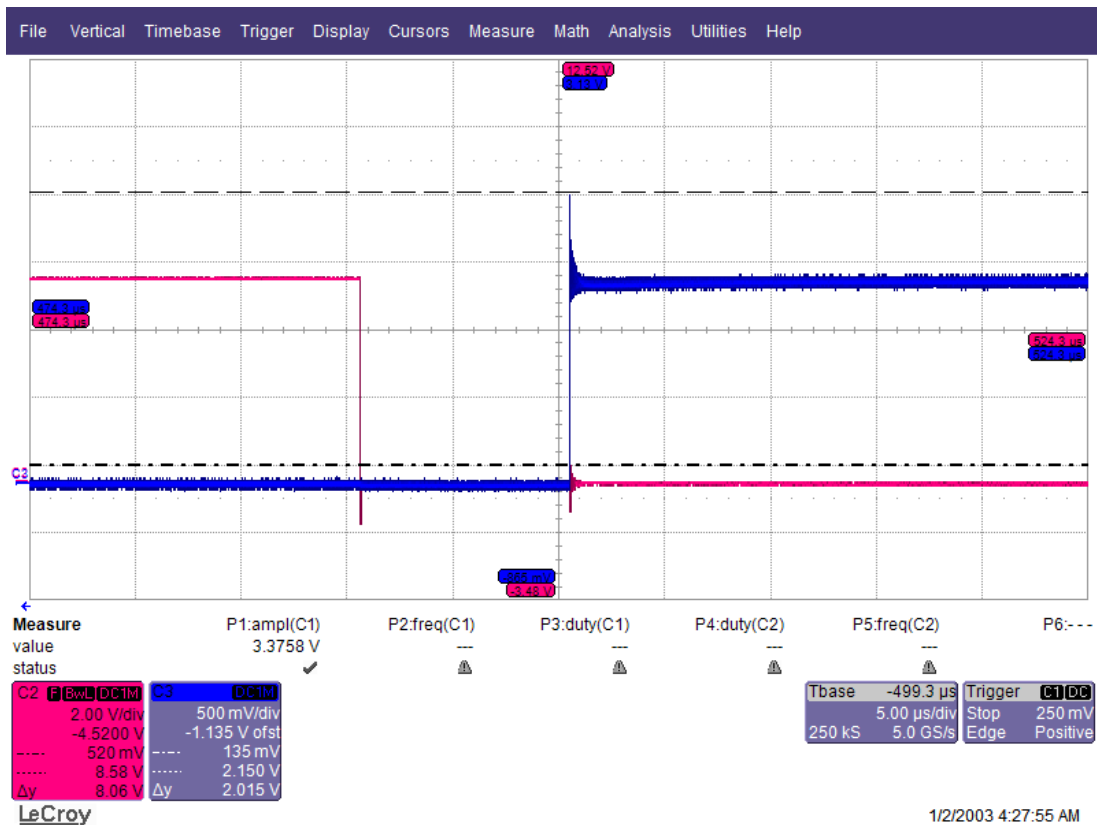


Figure 14: Dead Time View - Red \rightarrow V_{gs} , Blue \rightarrow V_{ds}

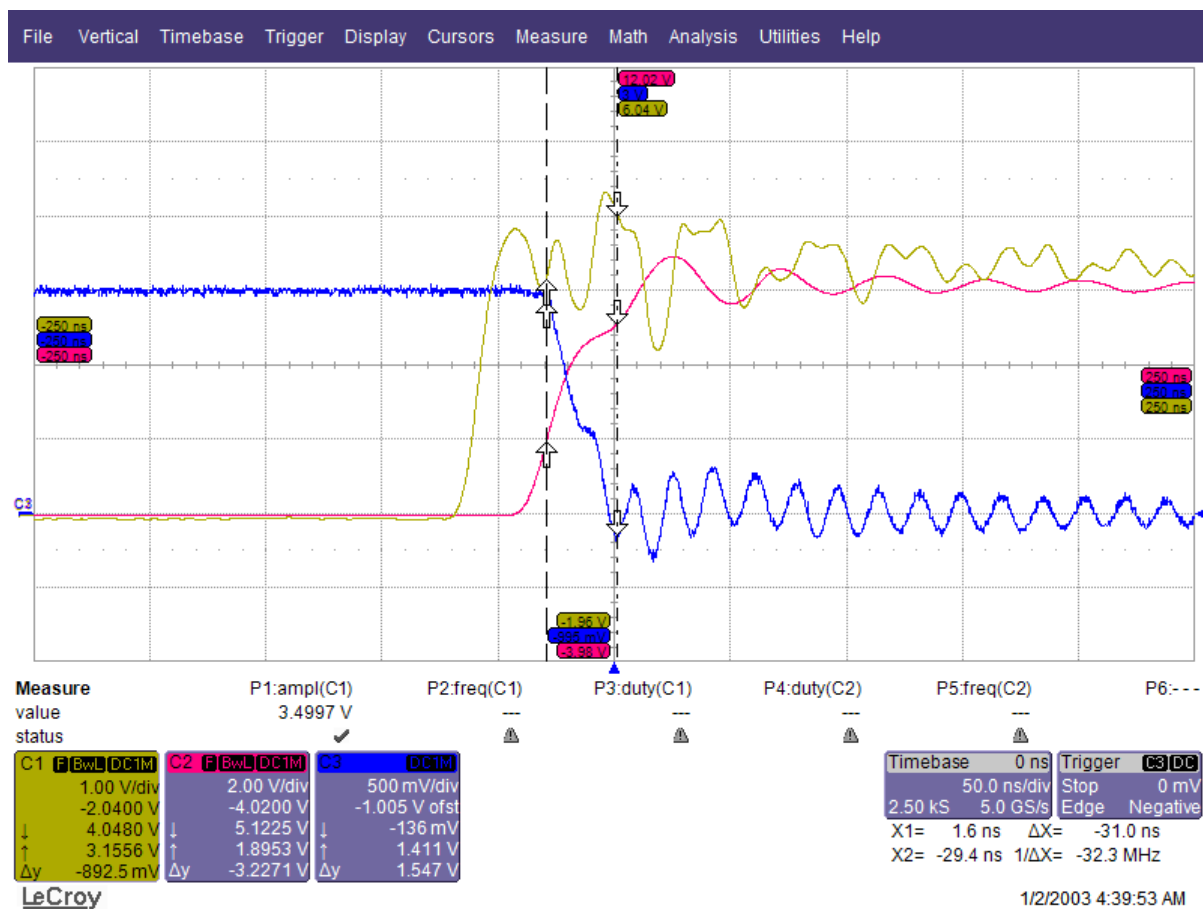


Figure 15: Blue > Vds, Red-> Vgs and Yellow -> Applied PWM