

Alta*dt*

data technologies

Innovation, Quality and Service

AltaCore™ and **AltaAPI™**

Quick Reference Guide

**ARINC & Protocol Engine
Data Structures**

and

API Operational Flow

Alta Data Technologies LLC

4901 Rockaway Blvd., Bld A

Rio Rancho, NM 87124 USA

888-429-1553 US toll free

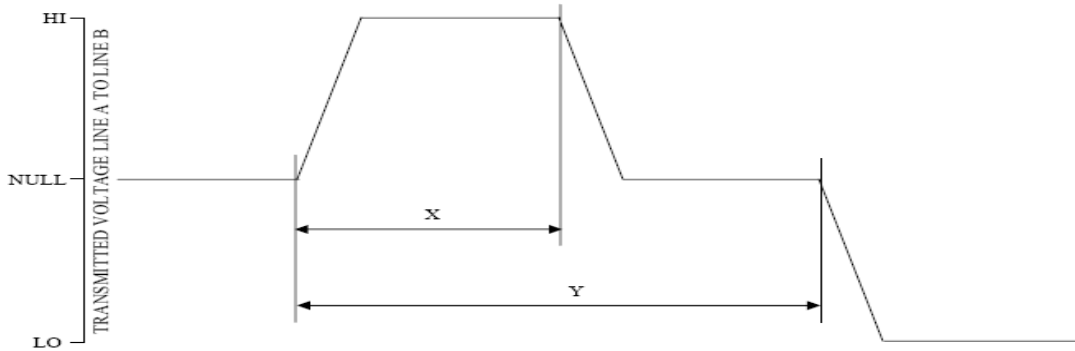
505-994-3111 • 805-758-6820 fax

alta.support@altadt.com

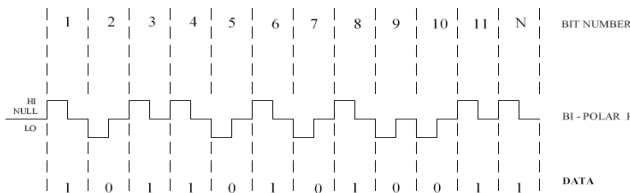
www.altadt.com

ARINC References

32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
P		SSM		DATA																		SDI		LABEL							
				MSB																				LSB							



PARAMETER	HIGH SPEED OPERATION	LOW SPEED OPERATION
Bit Rate	100k bps ± 1%	12 – 14.5kbps
Time Y	10 μsec ± 2.5%	Z* μsec ± 2.5%
Time X	5 μsec ± 5%	Y/2 ± 5%
Pulse Rise Time**	1.5 ± 0.5 μsec	10 ± 5 μsec
Pulse Fall Time**	1.5 ± 0.5 μsec	10 ± 5 μsec



Tabulated Voltages and Tolerances

Circuit	Transmitted Voltages				Received Voltage			
	HI		LO		HI		LO	
	NOM	TOL	NOM	TOL	NOM	TOL	NOM	TOL
LINE A TO LINE B	+5	+1.0	-5	+1.0	+5	+3.0	-5	+3.0
LINE A TO GROUND*	+5	+0.5	0	+0.5	+5	+1.5	0	+1.5
LINE B TO GROUND*	0	+0.5	+5	+0.5	0	+1.5	+5	+1.5

TABLE 6-1

32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
P		SSM		DATA																		SDI		LABEL							
				MSB																				LSB							
				PAD																				DISCRETES							
				[3]																				[2]							
				[4]																				[1]							

Generalized BCD Word Format

TABLE 6-1-1

P	SSM	BCD CH#2	BCD CH#2	BCD CH#3	BCD CH#4	BCD CH#5	SDI	8	7	6	5	4	3	2	1
0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0
Example		2		5		7		8		6					DME DISTANCE (201)

BCD Word Format Example (No Discretes)

TABLE 6-2

32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
P		SSM		DATA																		SDI		LABEL							
				MSB																				LSB							
				PAD																				DISCRETES							
				[3]																				[2]							
				[4]																				[1]							

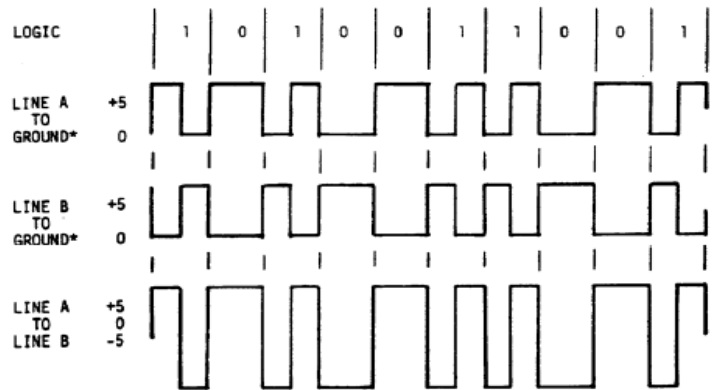
Generalized BNR Word Format

TABLE 6-2-1

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
P		SSM		PAD																		SDI		LABEL						
				1/2 1/4 1/8 1/16 1/32 1/64 1/128 etc																										
				0 1 0 0 0 1 0																				0 1 1 0 1 1 1 1 1						
				Example: 512 Knots (i.e., 1/8 x 4096 where 4096 is entry in range column of Table 2, Att. 2)																				N-S VELOCITY (366)						

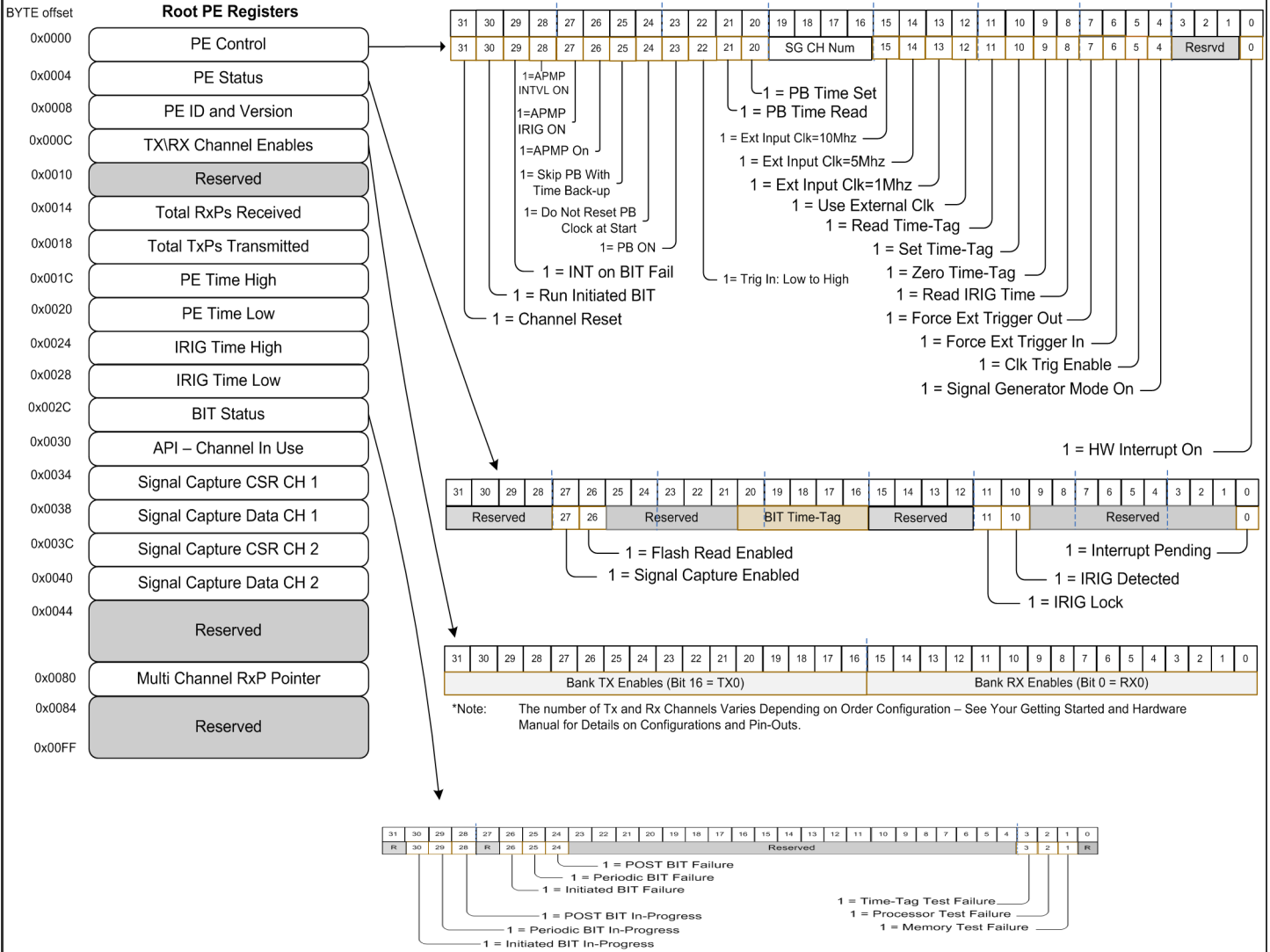
BNR Word Format Example (No Discretes)

OUTPUT LINE WAVEFORMS

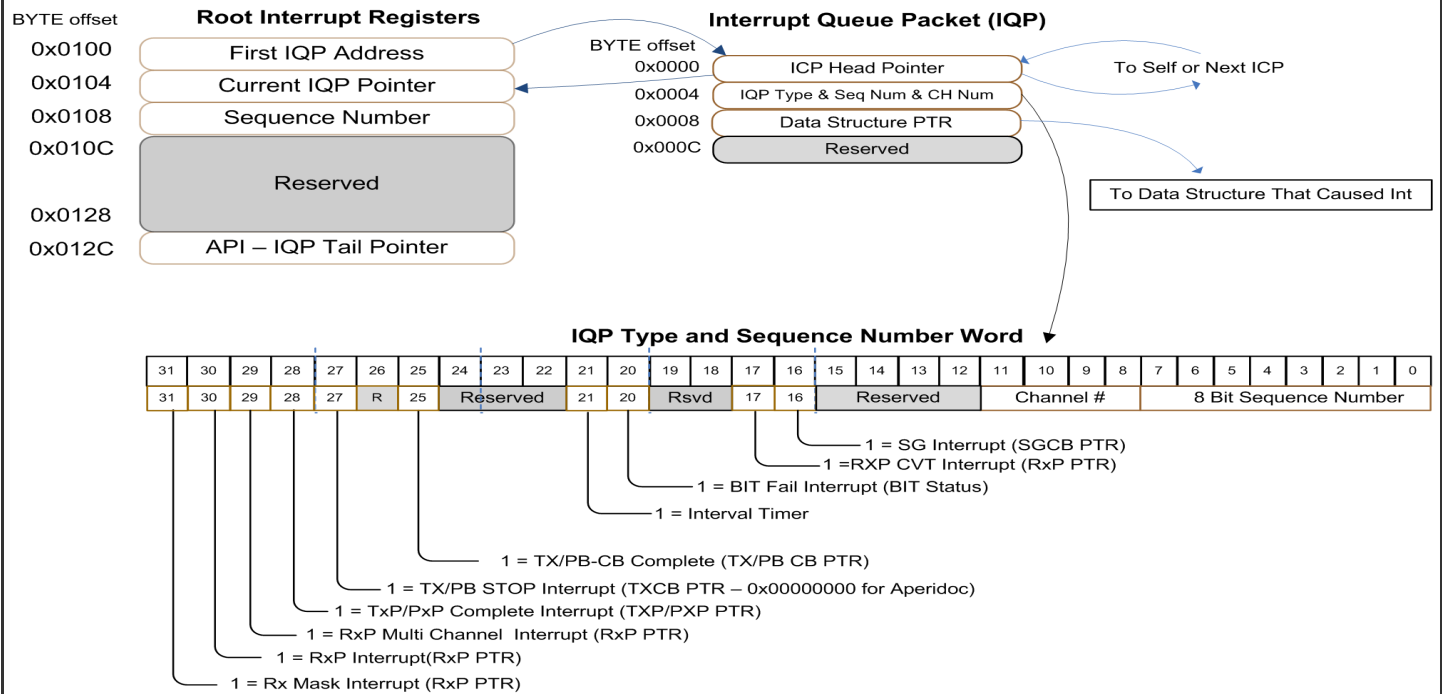


- NOTE 1:** "*" Indicates DFDAU*Digital Signal Ground"
- NOTE 2:** The "A" and "B" sides of each digital circuit (data and word sync) should use twisted and shielded cable with an insulating jacket.
- NOTE 3:** Above voltages and Tolerances are for loads in the range of 3,000 to 12,000 ohms and do not apply where direct head drive is used in DFDR.

ARINC Root PE Registers

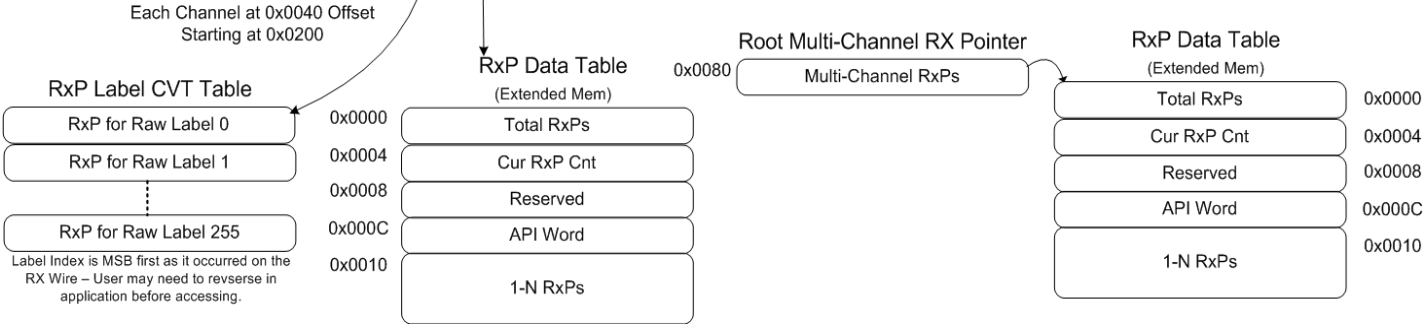
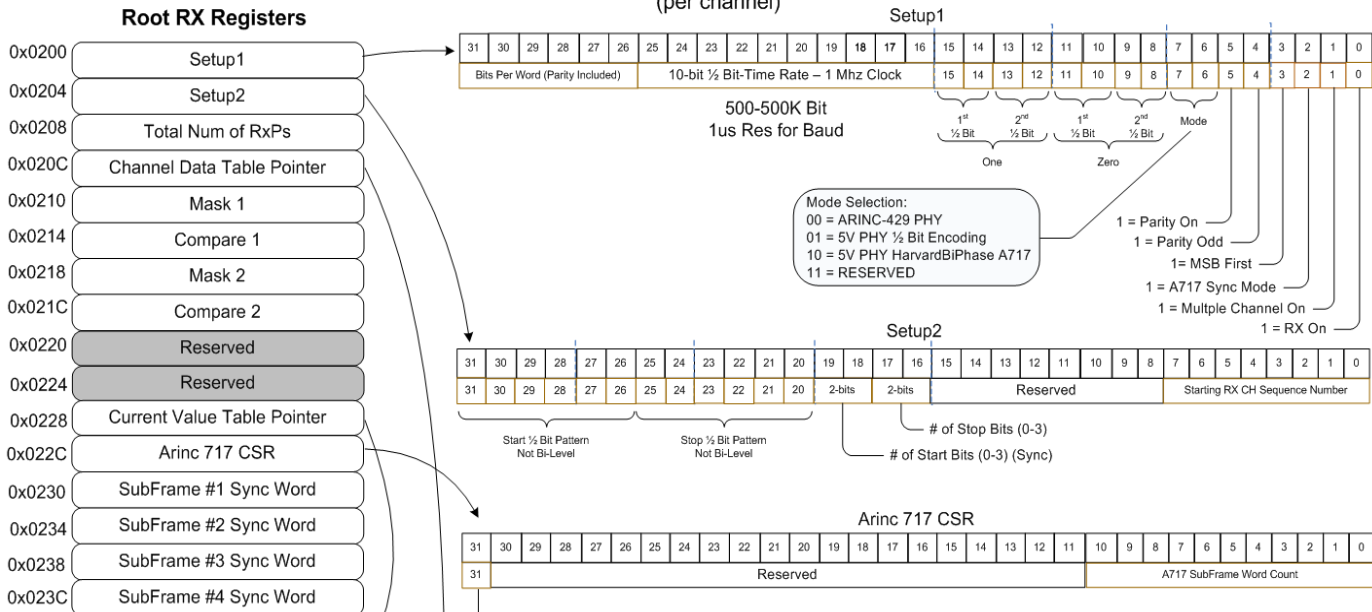


ARINC Interrupt Queue Data Structures



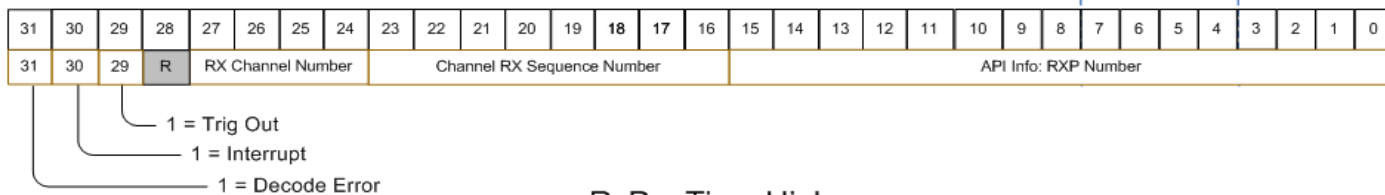
Root Rx Registers

(per channel)



RX Packet (RxP)

RxP - Control/Status Word



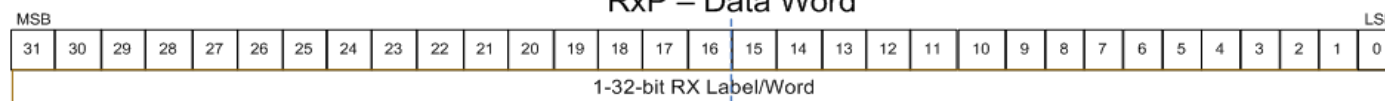
RxP - Time High



RxP - Time Low

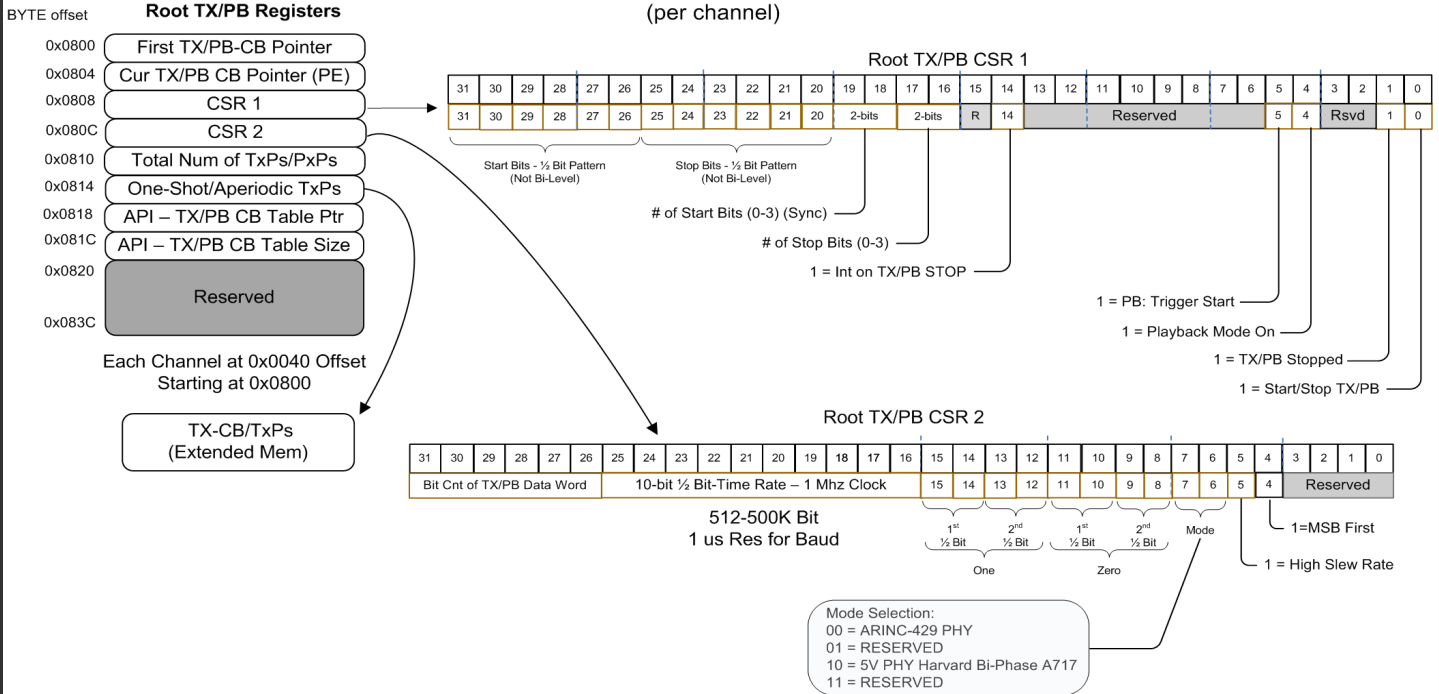


RxP - Data Word

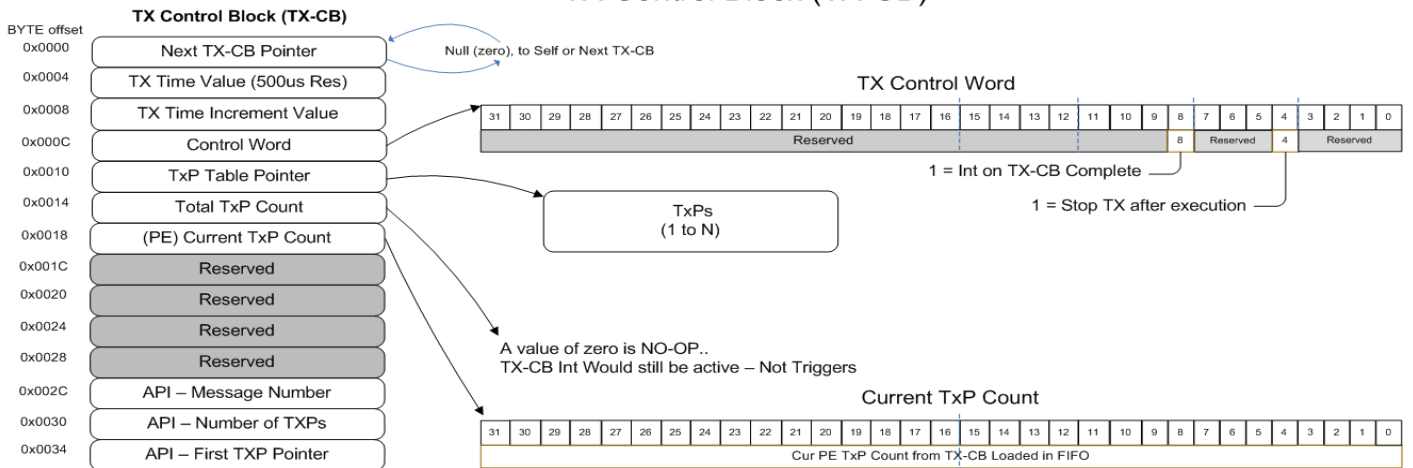


Root TX/PB Registers

(per channel)

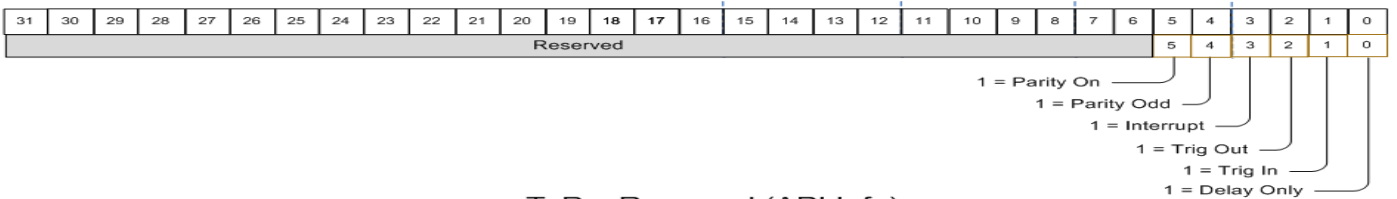


TX Control Block (TX-CB)

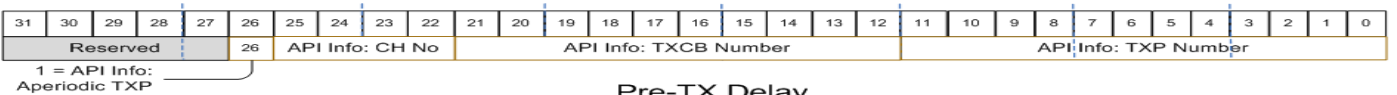


TX Packet (TxP)

TxP - Control Word



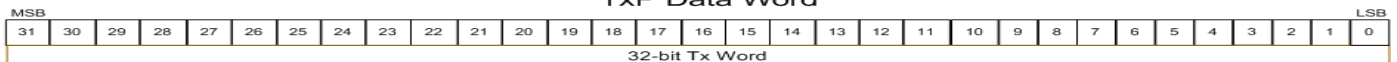
TxP - Reserved (API Info)



Pre-TX Delay

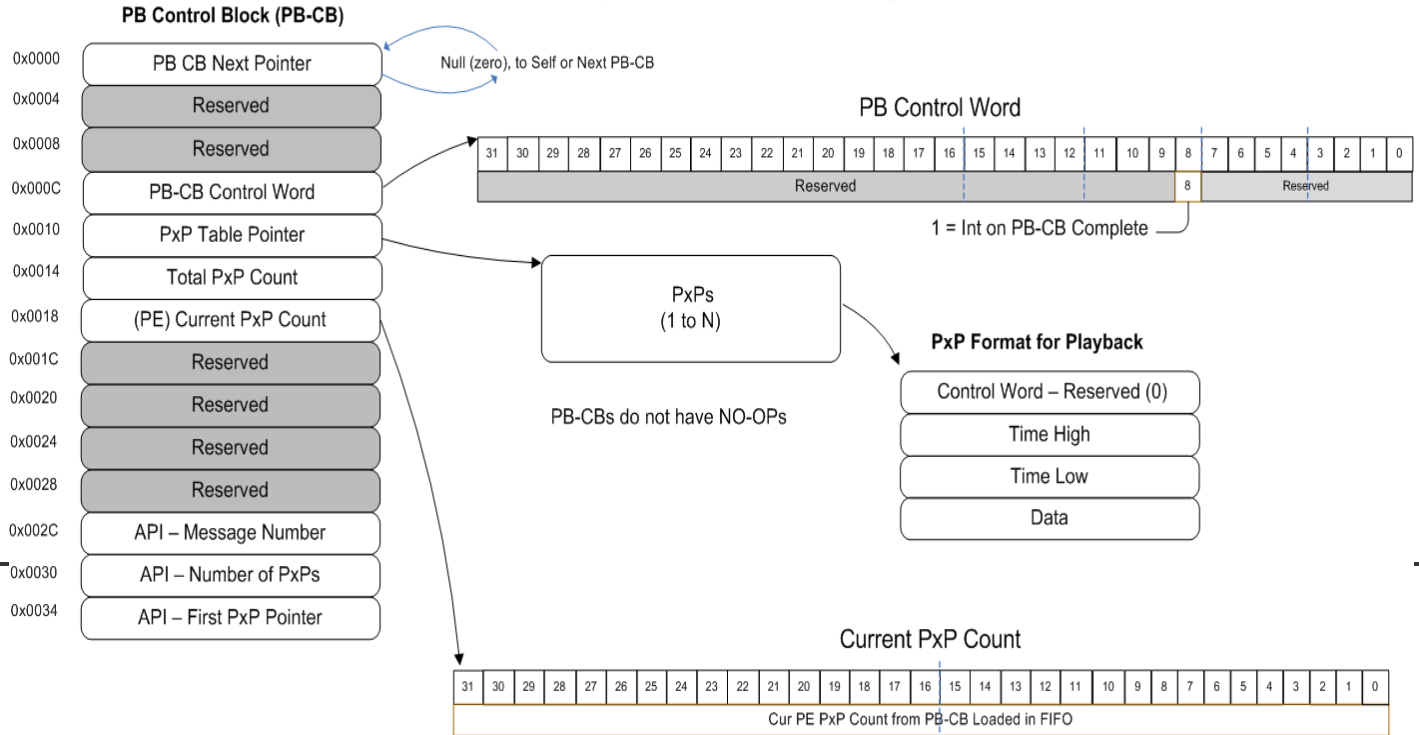


TxP Data Word



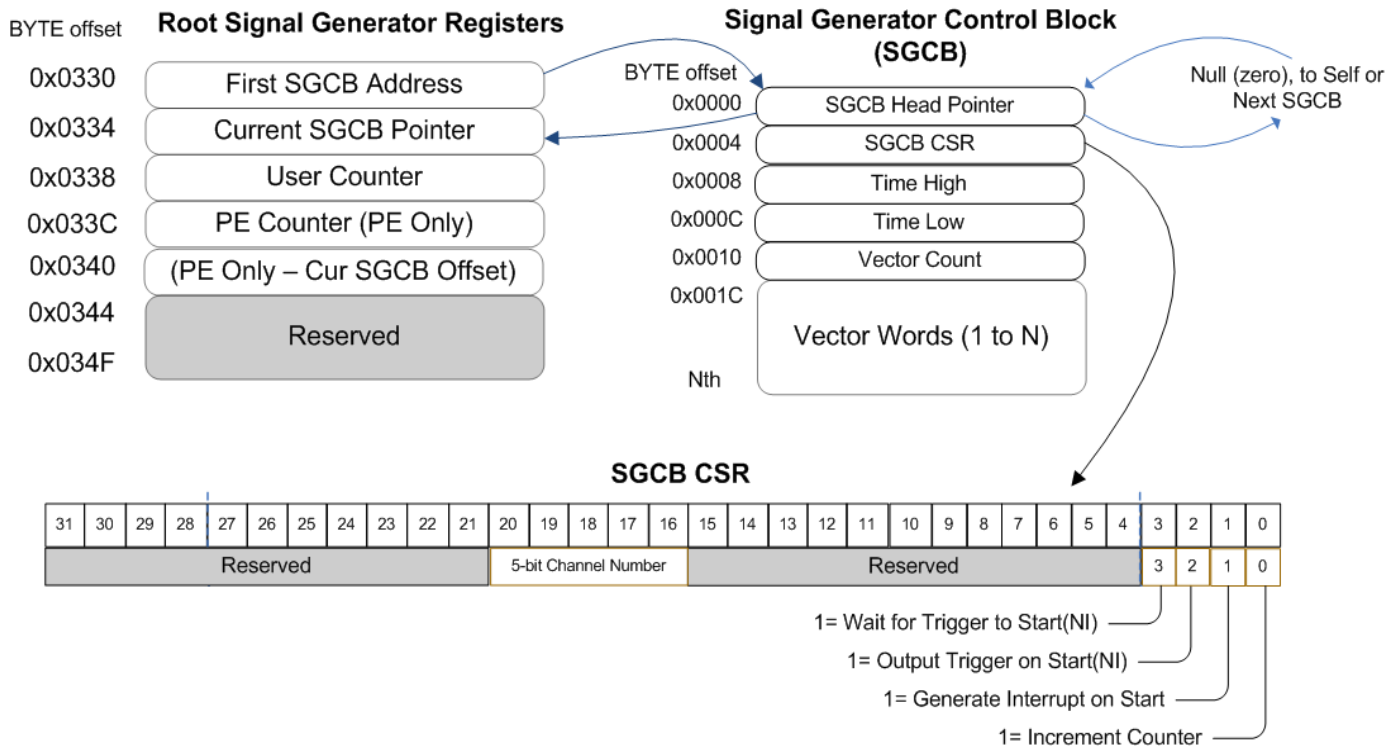
ARINC Playback Data Structures

(Same Basic Structures as TX)

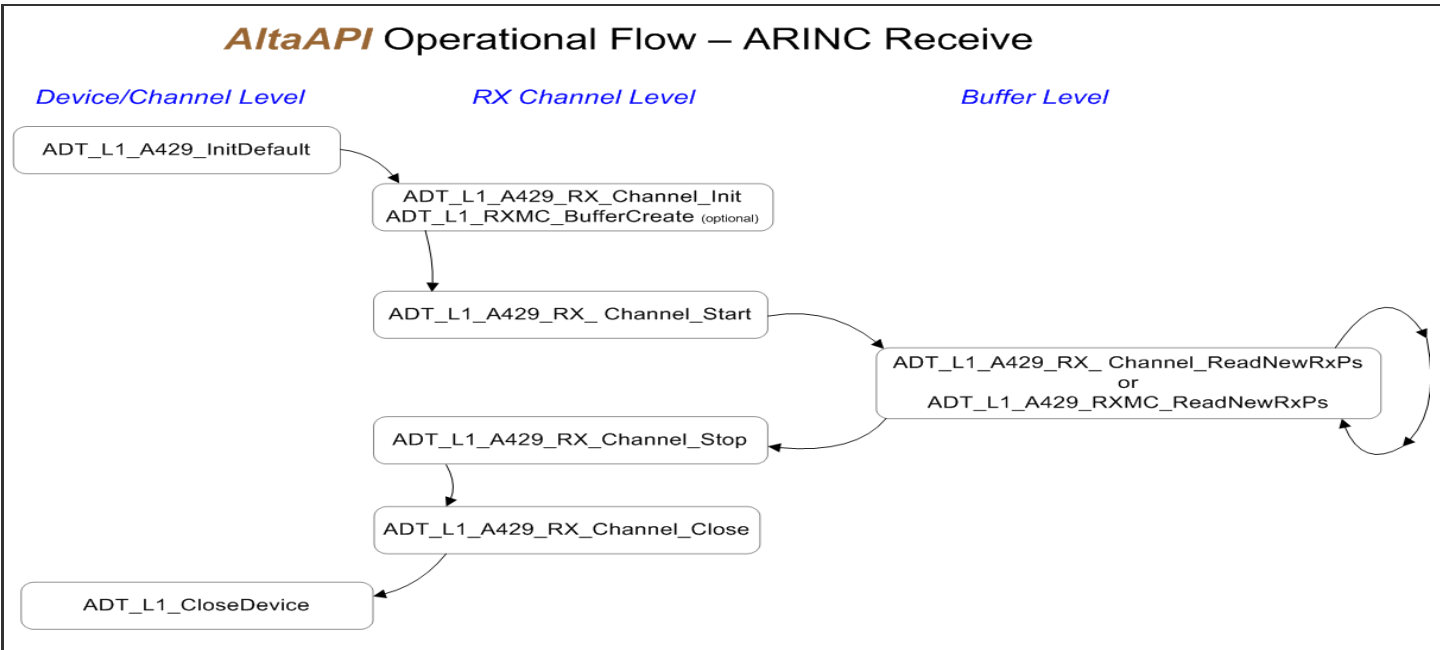


Signal Generator Data Structures

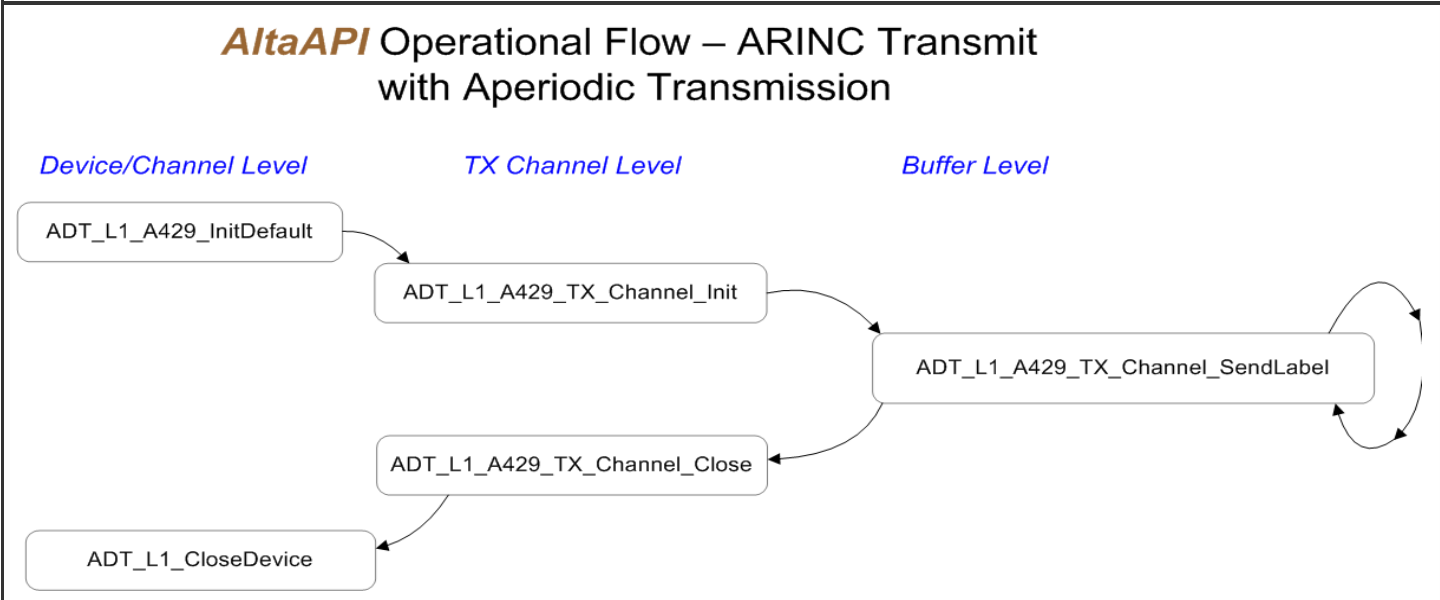
One Per PE ARINC Channel Bank (Device)



AltaAPI Operational Flow – ARINC Receive



AltaAPI Operational Flow – ARINC Transmit with Aperiodic Transmission



AltaAPI Operational Flow – ARINC Transmit with Frequency Scheduling

