

# INTEL<sup>®</sup> STRATIX<sup>®</sup> 10 DEVICE E-TILE TRANSCEIVER DEBUG TOOL

### Agenda

- Challenges with the current E-Tile transceiver debug process
- Features of the E-Tile Transceiver debug Tool
- Steps to run the E-Tile Transceiver debug Tool



### Transceiver Channel Bring-Up Challenges

- Complex tuning flow
- Tuning must be done with the help of scripts
- Transceiver Toolkit has no visibility of channel PMA parameters
- Scalability



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### Features of E-Tile Transceiver Debug Tool

- Single snapshot of all PMA parameters
- Option to reset the PMA parameters
- Perform adaptation and read bit errors
- Pre-loaded PMA configuration (10G\_db, 28G\_LR, 28G\_VSR, 56G\_LR, 56G\_VSR)
- Ability to modify PMA parameters and Custom tuning
- Logging PMA parameters in a log file (.csv format)
- Recommended tuning flow incorporated in the tool



### Three Steps to Run the Transceiver Debug Tool

**Step 1:** Program the device.

**Step 2:** Load the design in the system console.

Step 3: Use "cd" to change the directory where you have saved the tools script file and source "S10\_Etile\_Transceiver\_Debug\_Tool\_Quartus18p1p1\_V3p4.tcl"

System Console		- 🗆 X				
File Tools Help	Tooka 33			t cd {C:\Users\sgirisat	n\system_console\scripts}	
/ Connections / Typecs - Adapts -	ADC Tooline (Beta) The ADC Tooline (Beta) The ADC Tooline (Beta) The ADC Tooline (Beta) The associated hardware distribution The associated hardware distribution THIE Debug Tooline (Beta) A tool to dolug and analytic memory interfaces Lances Lance			source Sl0_Etile_Tran ** ** ** ** ** ** ** ** Sl0_Etile_Transceiver_ /devices/1ST280EU(1)213	nsceiver_Debug_Tool_Quartus18p1p1_V3p4.tcl * ** ** ** ** ** ** ** ** ** ** Funing_vQ18p1p1_V3p4 Load Start - Cu 3) IST280EY1 @2#USB-1/(link)/JTAG/(110:132	rrent time- 11hr_20min_29sec v1 #0)/phy_0/master
	Therest Link Rospecter Etherest Link Rospecter Linesets Etherest Link Rospecter - Link Analysis Etherest Link Rospecter - Link Analysis Etherest Link Rospecter - Link Analysis	stemet Inis for Stratu DLow Lattery 2005 Elferret IP care. mence of an Elfernet Inis for Stratu D Referent Corrections	E			
Message 18 Prohof rollaston A seric analysis of the series of the seri	- d' a det estres estres arres, protection arres, protection arres	Income iii		User wi	Il observe this new tab in t	ne system console



### Transceiver Debug Tool – JTAG List

nments										
					••••••	**				
1.Select the Jtag Path to tune										
2.Capability register should be enabled										
Register Address calculation										
Address = offset + (base_address + channel_multiplier * channel_no)										
ve Lookup Table										
Path Info	) 			No_	of_Channel	Base Address	Channel Multiplier	Datarate(gbps)	PMA_Status	PMA_Tuning
devices/4323D0DD/@2#05B-1/(ink	into			NA		NA	NA	NA	NA	NA
devices/4323D0DD@2#USB-1/(linkavalon_master/master_1_0.slave eth)	alt_ehipc3_0 alt_ehipc3_han	d_inst SL	.lane alt_xcvr_native_optional_rcfg_l	ogic 1		0×0	0x80000	25.78125	PMA_Status	PMA_Tuning
/devices/4323D0DD@2#USB-1/(linkavalon_master/master_2_0.slave no_i	info			NA		NA	NA	NA	NA	NA
{/devices/5M(1270ZF324 2210Z) EPM2210@1#USB-1/(link)/JTAG/(110:130 v3 #0)/jtagmem_0/slave_0} no_i	info			NA		NA	NA	NA	NA	NA
<pre>{/devices/5M(1270ZF324 2210Z) EPM2210@1#USB-1/(link)/JTAG/(110:130 v3 #0)/jtagmem_0/slave_20} no_i</pre>	info			NA		NA	NA	NA	NA	NA
<pre>{/devices/5M(1270ZF324 2210Z) EPM2210@1#USB-1/(link)/JTAG/(110:130 v3 #0)/jtagmem_0/slave_40} no_i</pre>	info			NA		NA	NA	NA	NA	NA
ster Lookup Table										
Jtag Path		No_of_Channel	Base Address C	nannel Mul	iplier	Datara	te(gbps)			
/devices/4323D0DD@2#USB-1/(link)/JTAG/alt_sld_fab_0_alt_sld_fab_0_sldfabric.node_4/phy_0/master_0.maste	er	1	0x00000 0	x80000		28	PMA_	Status PM	IA_Tuning	
/devices/4323D0DD@2#USB-1/(link)/JTAG/alt_sld_fab_0_alt_sld_fab_0_sldfabric.node_5/phy_1/master_0.maste	er	1	0x00000 0	x80000		28	PMA	Status PM	IA_Tuning	
/devices/4323D0DD@2#USB-1/(link)/JTAG/alt_sld_fab_0_alt_sld_fab_0_sldfabric.node_6/phy_2/master_0.maste	er	1	0x00000 0	x80000		28	PMA	Status PM	IA_Tuning	
/devices/4323D0DD/@2#USB-1/(link)/JTAG/alt sld fab 0 alt sld fab 0 sldfabric.node 7/ohv 3/master 0.maste	er	1	0x00000 0	×80000		28	PMA	Status PM	A Tuning	
			h-00000 h	-90000				Charles Div	A. Thesian	
raevices/42220000/@2#030-1/(iiik/)31Xd/aic_siu_lau_0_aic_siu_lau_0_siulauhichioue_o/phiy_4/iilastei_0.iilaste	0	<u> </u>	px00000 p			P	- Frida	status PP	A_forming	
/devices/4323D0DD@2#USB-1/(link)/JTAG/alt_sld_fab_0_alt_sld_flt_sld_fab_0_alt_sld_fab_0_memfabric	c_transacto.avalon_master	1	px00000 p	x80000		28	PMA_	Status PM	IA_Tuning	
[/devices/5M(12707E324]22107)[EDM2210/01#ISE_1//link]/TEAC/(110:130.v3.#0]//teamen_0]		1	0x00000	x80000		28	PMA	Status PM	A Tuning	

### Transceiver Debug Tool – JTAG List

Comments  Select the Jtag Path to tune 2.Capability register should be enabled	<b>Slave Lookup Table</b> lists all the IPs in the design that has ADME enabled
The set offset - (base_pddress + charnel_multipler * charnel_no)  dave tookup Table Path Info No_of_Channel Base Address ChannelMultipler Datarate(dops) PMA_Status PMA_Tuning (devices/IST280EUL(12)3) IST280It_sid_fab_0_memfabric_rom.rom no_info NA	Info Includes <ul> <li>JTAG path, Info</li> <li>No_of_Channel</li> <li>Base Address</li> <li>Channel Multiplier</li> </ul>
Devices/15/20000(1(1/3)[151:00000000000000000000000000000000000	Datarate(Gbps)
Jtag Path       No_of_Chamel       Base Address       Chamel Multiplier       Dataste(dpp)         /devices/IST280EU(12[3))IST280EY1 @2#US8-1/(link)/JTAG/alt_sid_fab_0_sid_fab_0_sid_fab_0_sid_fab_0_sid_fab_0_sid_fab_0_memfabric_transacto.avalon_master       1       \$\bar{p}\$x100000       28       PMA_Status       PMA_Tuning         /devices/IST280EU(12[3))IST280EY1 @2#US8-1/(link)/JTAG/altlt_sid_fab_0_sid_fab_0_sid_fab_0_memfabric_transacto.avalon_master       1       \$\bar{p}\$x00000       28       PMA_Status       PMA_Tuning	Master Lookup Table list all the Jtag Master Info Includes

- JTAG path
- No\_of\_Channel
- Base Address
- Channel Multiplier
- Datarate(Gbps)



### Transceiver Debug Tool – JTAG List

Comments		
slave Lookup Table Path Info /devices/IST280EU(1)2[3)[IST280lt_sid_fab_0_memfabric_rom.rom no_info /devices/IST280EU(1)2[3)[IST280avalon_master/master_1_0.slave av_top[alt_ehipc3_0[alt_ehipc3_hard_inst]lane[al	No_of_Channel Base Address Channel Multipler Datarats(gbps) PMA_Status PMA_Tuning NA NA NA NA NA NA NA NA NA It_xcvr_native_optional_rcfg_logic 1 px0 px80000 25:78125 PMA_Status PMA_Tuning	For ADME Enabled Slave Path, Click on the tool you want to open
master Lookup Table Jtag Path /devices/IST280EU(112(3))IST280EY1[@2#US8-1/(link)/JTAG/alt_sid_fab_0_alt_sid_fab_0_sid_fab_0_sid_fab_0_memfabric_transacto.avalon_mast /devices/IST280EU(112(3))IST280EY1[@2#US8-1/(link)/JTAG/alt	No_of_Channel         Base Address         Channel Multiplier         Datarate(gbps)          master_0.master          1          0x10000          28          PMA_Status         PMA_Tuning           ter          1          0x0000          28          PMA_Status         PMA_Tuning	For Master JTAG Path, Enter the information in the editable textbox and click on the tool you want to open
	In this Ethernet 25G IP example shown, No_of_Channel = 1 Base Address = 0x100000 Channel Multiplier = 0x100000 Datarate(Gbps)= 28.	



# INTEL<sup>®</sup> STRATIX<sup>®</sup> 10 DEVICE E-TILE TRANSCEIVER STATUS TOOL

		analogical analogical accord 1.610	p1_10p0						
		Comments							
dents		** ** ** ** ** ** ** **		** ** ** ** ** ** ** **			** ** ** ** ** ** ** **	* ** ** ** ** ** ** **	** ** ** ** ** ** **
Select the Jtog Parts to tune		1 To use this tool ADME sho	ould be Enabled for acr	region DMA registers					
Jeakily register should be enabled		1. TO USE UNS LOOF ADML SIN	ould be chabled for act	congreen registers					
gater Address calculation		2.Capability register should	d be enabled for readin	g CDRLOCK register					
Address = offset + (base_siddress + channel_multipler * channel_mo)		3.For PAM4 design, conside	er only even channels.	This is fixed from Quart.	us 18.1 onwards.				
		4.Valid Range - Transmitter	r. VOD_Attenuation = (	0 to 31. Post_tap1, Pre_	tap1, Pre_tap2 = -31 t	o 31. Pre_tap3 = -1 to -	+1		
Lookup Table		5.Valid Range - Receiver_A	Adaptation. GS1, GS2 =	0 to 3. RF_80 = 0 to 5.	RF_B1 = 0 to 8. GAINL	F, GAINLF = 0 to 15. R	F_P2 = -10 to 10. RF_P:	1 = 0 to 15. RF_P0 = -1	15 to 15
th Info No_of_Channel Base Address Channel M	al Multiplier Datarate(gbps) PMA_Status MA_Tuning	6.Valid Range - RX Analog	Settings. RF P2 min,	RF P2 max = -10 to 10	. RF P1 min, RF P1 m	ax, RF BOT, CTLE LF r	nin, CTLE LF max, CTLE	HF min, CTLE HF ma	x = 0 to 15
r/ices/4022000/B2/#USH-II(Ink	NA NA NA								
vices/122000/24/05-1/(link	AU 25.75125 PHA_South PHA_Turing								
10110000000000000000000000000000000000	NA NA NA								
lex/ces/ISM(12702F324)22102)19FM2210@18U8E-1/(Ink)/ITAG/(110:130 v3 #0)/bagmen_0/klave_20) no_info NA NA NA	NA NA NA	Testeres Table							
ences/354(127027524)22302(3)64028-10(ink)/7746(110:30 v3 #0)(/bagmem_0/blave_80) ro_into NA NA NA	NA NA NA	Instance Lable							
sr Loskup Table		36 \Generate_transceive	er_block:0:instx xcvr_t	xrx_inst xcvr_native_s1	0_etile_0 alt_xcvr_nati	<pre>/e_optional_rcfg_logic</pre>	Datarate = 30.0 Gbps		
g PVan reg_randrom	PMA States PMA Tuning	37 \Generate_transceive	er_block:1:instx xcvr_t	xrx_inst xcvr_native_s1	0_etile_0 alt_xcvr_nati	/e_optional_rcfg_logic	Datarate = 30.0 Gbps		
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www.d4322000.02.24.56.1664/1746/04 d4 fbb 0.48 d4 fbb 0.48 fbb/r. 20x46 6 fb/r. 2 houter 0 mater 1 Dr00000 D00000 D0	PMA Status PMA Tuning	39 \Generate transceive	er block:3:instx1xcvr_t	xrx instlxcvr native s1	0 etile 0 alt xcvr nati	e optional refe logic	Datarate = 30.0 Ghos		
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eversek1930000228 Ski (Bek)/TAGABE all fab 0 all del fab 0 delfaber onde Aller disease 0 medere 1 Di00000 Dratoro 20	PMA Status PMA Tuning	Time to test in seconds							
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	The start of the s	1 v x 1 v	= 1 Seconds						
energiaufrauen aufarantila uztradi aurantila underner zu autalitzen 20. la	TOCIDE TOCIDE								
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		26 37 28 20							
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			channel_0	channel_1	channel_2	channel_3	channel_4	channel_5	channel_6
			Reset	Reset	Reset	Reset	Reset	Reset	Reset
	$\mathbf{X}$		Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS
			ILB	ILB	ILB	ILB	ILB	ILB	ILB
	$\mathbf{X}$		iADP	iADP	iADP	iADP	iADP	iADP	iADP
	$\sim$		Reset BER	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER
			Read BER	Read BER	Read BER	Read BER	Read BER	Read BER	Read BER
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S10 Etile transceiver debug vO18p1	1 V3p3														
								Status	Lielected	Linkstond	Unlocked	Lielectrod	Unlacked	Linkshod	Helectrod
Comments								CDR_lock_to_data	Unlocked	Uniooked	Unlocked	Unlocked	Unlocked	Unlocked	Unlocked
** ** ** ** ** ** ** **	** ** ** ** ** ** ** **	* ** ** ** ** ** ** **	** ** ** ** ** ** ** **	* ** ** ** ** ** ** **	** ** ** ** ** ** ** **	** ** ** ** ** ** ** **	** ** ** ** ** ** ** ** ** **	TX_ready	High	High	High	Hgn	High	High	High
1.To use this tool ADME shou	uld be Enabled for acces	sing PMA registers						RX_ready	Low	Low	Low	Low	Low	Low	Low
2.Capability register should b	be enabled for reading	CDRLOCK register						Transmitter							
3.For PAM4 design, consider	only even channels. Th	his is fixed from Quartu	18.1 onwards.					VOD_attenuation	0	0	0	0	0	0	0
4. Valid Range - Transmitter.	VOD_Attenuation = 01	to 31. Post_tap1, Pre_t	ap1, Pre_tap2 = -31 to	31. Pre_tap3 = -1 to +	-1			post tap1	0	0	0	0	0	0	0
5.Valid Range - Receiver_Ad	aptation. GS1, GS2 = 0	0 to 3. RF_B0 = 0 to 5.1	$RF_B1 = 0$ to 8. GAINLF	, GAINLF = 0 to 15. RF	_P2 = -10 to 10. RF_P1	= 0 to 15. RF_P0 = -15	to 15	me teni	0	0	0	0	0	0	0
6.Valid Range - RX_Analog_S	Settings. RF_P2_min, R	F_P2_max = -10 to 10.	RF_P1_min, RF_P1_ma	x, RF_BOT, CTLE_LF_m	in, CTLE_LF_max, CTLE	_HF_min, CTLE_HF_ma>	= 0 to 15	pro_opt	0	0	0	0	0	0	0
								pre_tap2		0	•		•	•	•
** ** ** ** ** ** ** **		••••••	•••••••	• • • • • • • • • • • • • • • • • • • •	•• •• •• •• •• •• ••		•••••	pre_tap3	U	U	0	U	U	v	U
									Default 🗸 🗸	Default 🗸	Default 🗸	Default 🗸	Default 🗸	Default 🔍	Default 🗸
Instance Table									Apply	Apply	Apply	Apply	Apply	Apply	Apply
36 \Generate_transceiver	_block:0:instx xcvr_txr	x_inst xcvr_native_s10	_etile_0 alt_xcvr_nativ	e_optional_rcfg_logic	Datarate = 30.0 Gbps			Receiver Adaptat	on						
37 \Generate_transceiver	_block: 1:instx  xcvr_txr	x_inst xcvr_native_s10	_etile_0 alt_xcvr_nativ	e_optional_rcfg_logic	Datarate = 30.0 Gbps			GS1	0	0	0	0	0	0	0
38 \Generate_transceiver	_block:2:instx xcvr_txr	x_inst xcvr_native_s10	_etile_0 alt_xcvr_nativ	e_optional_rcfg_logic	Datarate = 30.0 Gbps			GS2	0	0	0	0	0	0	0
39 \Generate_transceiver	_block:3:instx xcvr_txr	x_inst xcvr_native_s10	_etile_0 alt_xcvr_nativ	e_optional_rcfg_logic	Datarate = 30.0 Gbps			RE BO	0	0	0	0	0	0	0
Time to test in seconds								DE B1	0	0	0	0	0	0	0
								0.01	0	0	0	0	0	0	0
1 V X 1 V =	1 Seconds							GADINE	8	8	8	8	8	8	8
itan nath ∔ Channel								GAINH		0	•	0			0
Jug_put i chamer								RF_P2	0	0		0	0	0	0
36 37 38 39								RF_P1	0	0	0	0	0	0	D
Dead								RF_P0	0	0	0	0	0	0	0
Redu								RX_Analog_Settin	IS						
	channel_0	channel_1	channel_2	channel_3	channel_4	channel_5	channel_6	RF_P2_min	-10	-10	-10	-10	-10	-10	-10
	Reset	Reset	Reset	Reset	Reset	Reset	Reset	RF_P2_max	10	10	10	10	10	10	10
	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS	RF P1 min	0	0	0	0	0	0	0
								DE D1 may	15	15	15	15	15	15	15
	ILB ILB	ILB ILB	ILB ILB	ILB	ILB	ILB	ILB ILB	0.0 2000	0	0	0	0	0	0	P
	iADP	iADP	iADP	iADP	iADP	iADP	iADP	KP_801	0	0	0	0	0	0	0
								CILE_LF_mn							
	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER	CTLE_LF_max	15	15	15	15	15	15	15
	Read BER	Read BER	Read BER	Read BER	Read BER	Read BER	Read BER	CTLE_HF_min	0	0	U	0	U	U	U
								CTLE_HF_max	15	15	15	15	15	15	15

#### \*For readability in the presentation, Status Tool screenshot broken into two

Connects	A ADPE should be Enabled for accessing PMA registers ster should be Enabled for reading CDRLOCX register gn, consider only even channels. This is fixed from Quertus 18.1 smarde. Transmiter. YOO, Alternation = 0 to 13. RF_BD = 0 to 3. RF_BT = 0 to 3. RF_BT = 0 to 15. RF_PT = 10 to 10. RF_PT = 0 to 15. RF_PD = -15 to 15 RC_Analog_Settings. RF_PT_mm, RF_PT_mmx = -10 to 10. RF_PT_mmx, RF_BDT, CTLE_UF_mmx, CTLE_UF_mmx, CTLE_UF_mmx = 0 to 15 RC_Analog_Settings. RF_PT_mm, RF_PT_mmx = -10 to 10. RF_PT_mmx, RF_PT_mmx, RF_PT_mmx, RF_PT_mmx, CTLE_UF_mmx, CTLE_UF_mmx, CTLE_UF_mmx = 0 to 15 Transceiver_ModelOntoch_loor_torx_institycor_native_st0_storal_rdg_logic Datarate = 30.0 Gbps ands a 3 Seconds a diamod_0 dnamel_1 dnamel_2 dnamel_3 dnamel_4 dnamel_5 dnamel_6 dnamel_7 Reset Reset		and all rates							
1. To use this tool ADME should be Enabled for accessing PMA registers 2. Capability register should be enabled for reading CDELOCK register 3. For PAMH design, consider only even channels. This is fixed from Quarkus 18. 1 onwards. 4. Valid Kange - Transmitter, VOD_Atternuston = 0 to 3.1. Pot_tpot_, Pre_tpot_, Pre_tpot_= -1 to ±1 5. Valid Kange - Rever, Advatation, CSL, GSZ = 0 to 10.3. RF_gP1 = 0 to 10	A ADME should be Enabled for accessing PMA registers stars should be enabled for accessing PMA registers gr, consider only even channels. The is fixed from Quartus 18.1 conwards. Transmitter, VOD_Attenuation = 0 to 31.8 hot 1.501, Pre_top1, Pre_top2 = -31 to 31.9 hot 1.502, Pre_top3 = -1 to +1 Receiver_Addatation. G31, G2 = 0.0 to 3.8 FL_0 = 0.0 to 5.8 FL_0 = 0 to 15.8 FL_0 = -15 to 15 RX_Analog_Settings. RF_D^2_min, RF_D^2_min, RF_D_1_max, RF_BOT, CTLE_LF_max, CTLE_LF_max, CTLE_LF_max, CTLE_LF_max = 0 to 15 RX_Analog_Settings. RF_D^2_min, RF_D^2_max = -10 to 10. RF_P1_min, RF_P1_max, RF_BOT, CTLE_LF_max, CTLE_LF_max, CTLE_LF_max = 0 to 15 rd	Comments								
1.To use this tool ADME should be Enabled for reading CDRLOCK register 3.Capability register should be enabled for reading CDRLOCK register 3.Capability register should be enabled for reading CDRLOCK register 3.Short PAM design, consider only even channels. This is fand from Quartus 18.1 comwards. 4.Vaid Range - Transmitter. VOD Attenuation = 0 to 31. Pot_top1, Pre_top2 = -31 to 31. Pre_top2 = -10 to 10. PE_P1 = 0 to 15. PE_P0 = -15 to 15 5.Vaid Range - RX_Analog_Settings. PE_P2_min, RF_P2_max = -10 to 10. RF_P1 = 0 to 15. PE_P0 = -15 to 15 5.Vaid Range - RX_Analog_Settings. RF_P2_min, RF_P2_max = -10 to 10. RF_P1 = max, RF_P0T, CTLE_LF_min, CTLE_LF_min, CTLE_LF_max, CTLE_LF_max	A LONE Finable for accesing PMA registers stars should be maked for accesing PMA registers stars should be enabled for reading CDRLOCK register gr, consider only word hanned. This is fixed from Quartus 18.1 comwards. Transmitter. VOD_Attenuation = 0 to 31. Post_top1, Pre_top1, Pre_top2 = -31 to 31. Pre_top2 = -1 to 10. RF_P1 = 0 to 15. RF_P0 = -15 to 15 RF_P1 = 0 to 15. RF_P0 = -15 to 15 RF_P1 = 0 to 15. RF_P1 = 0 to 10. RF_P1 = max, RF_P1 = max, RF_P1 = 0 to 15. RF_P1 = 0 to 15. RF_P1 = 0 to 15 RF_P1 = 0 to 15. RF_P0 = -15 to 15 RF_P1 = 0 to 15. RF_P1 = max = -10 to 10. RF_P1 = max, RF_P1 = max, RF_P1 = max, CTLE_UF_max, CTL			** ** ** ** ** ** ** **			** ** ** ** ** ** ** **			
2.Copability register should be enabled for reading CRUCK register 3.For PAM4 design, consider only even channels. This is fixed from Quartus 18.1 conwards. 4.Valid Range - Transmitter. VOD_Atternuation = 0 to 31. Piet_top1, Pre_top2, Pre_top2 = -11 to 11. RF_P1 = 0 to 15. RF	Star should be enabled for reading CDRUCKY register         gr, consider only even channels. This is fixed from Quartus 18.1 convards.         Transmitter. VOD_Attenuation = 0 to 31. Flog = 0 to 32. RF_B1 = 0 to 8. GADREF, GADREF = 0 to 13. RF_P1 = 0 to 15. RF_P1	1.To use this tool ADME	should be Enabled for acc	esing PMA registers						
3.For PANH design, consider only even channels. This is fixed from Quartus 18. Lonwards. 4. Vaid Range - Transmitter, VOD_Attenuation = 0 to 31. Post_tpa1, Pre_tpa2 = -31 to 31. Pre_tpa2 = -1 to 51. Pre_tp2 = 10 to 10. Pre_tp1 = 0 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 10. Pre_tp1 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 15. Pre_tp2 = -10 to 15. Pre_tp2 = -10 to 10. Pre_tp1 = -10 to 15. Pre_tp2 = -10 to 15. P	gn, condet only even channels. This is fixed from Quartus 18.1 converds. Transmitter. VOQ_Atternuation = 0 to 31. Post_tpot, Pre_tpot = -11 to 31. Pre_tpot = -11 to 31. Pre_tpot = -11 to 31. Pre_tpot = 0 to 51. Pre_tpot = 0	2.Capability register sho	uld be enabled for reading	g CDRLOCK register						
4.Vaid Range - Transmitter, VOD_Atternution = 0 to 31, Potb00 = 0 to 31, Preb00 = -1 to 31, Preb00 = -1 to 31, Preb00 = -1 to 10, Preb00 = -1 to 1	1       Internetic, VOD_Atternation = 0 to 31, Pet_100_1, Pet_100_2 = -31 to 31, Pet_100_1 = -10 to 15, RF_01 = 0 to 15, RF_00 = -15 to 15         Receiver_Adaptation. GS1, GS2 = 0 to 3. RF_00 = 0 to 10. RF_01_mm, RF_01_mm, RF_01_T, CTLE_UF_mm, CTLE_UF_m, CTLE_UF_mm, CTLE_UF_m, CTLE_UF_mm, CTLE_UF_m, CTLE_UF_m, CTLE_UF_m, CTLE_UF_m, CTLE_UF_m, CTLE_UF_m, CTL	3.For PAM4 design, cone	ider only even channels.	This is fixed from Quart	us 18.1 onwards.					
Stratt Radge - Network       Addresse - Network       Addresse - Network       Addresse - Network       Addresse - Stratt PRBS         6. Valid Range - RX, Analog Settings: RF_P2_min, RF_P2_min, RF_P1_min, RF_P1_max, RF_BOT, CTLE_UF_min, CTLE_UF_max, CTLE_UF_max       C	Addresses       RESERT       Reset	4.Valid Range - Transmit	ter. VOD_Attenuation = (	to 31. Post_tap1, Pre	_tap1, Pre_tap2 = -31 t	o 31. Pre_tap3 = -1 to -	+1			
exemple into the provided periods in the provide of the provide of the provided of the provide	Junsceiver Jood: 00instx [xor_tex_inst] xor_netve_s10_etle_0[alt_xor_netve_optional_rtfg_logic       Detarate = 30.0 Gbps         onds       = 3 Seconds         vi       = 3 Seconds         via       = 3 Seconds         start PRBS       Start PRBS         Start PRBS       Start PRBS         Start PRBS       Start PRBS         1 1 8       1 18         1 1 8       1 18         1 8       1 18         1 8       1 8     <	5.Vaid Range - Receiver	_Adaptation. GS1, GS2 =	0 to 3. RF_BU = 0 to 5	NF_B1 = 0 to 8. GAIN	F, GAINLF = 0 to 15. K	- y2 = -10 to 10. KF y1	1 = 0 to 15. RF_P0 = -1	5 to 15	
nstance Table 36 Visionerate_transceiver_block:0xinstv/txor_box_inst/txor_pative_s10_etile_0[alt_xxvr_native_optional_rcfg_logic_Datarete = 30.0 Gbps ag_path + Channel 36 Read duannel_0 duannel_1 duannel_2 duannel_3 duannel_4 duannel_5 duannel_6 duannel 6 Reset Re	transceiver block:0:nstx/porr_pative_s10_etle_0[alt_porr_pative_optional_rcfg_logic       Datarate = 30.0 Gbps         onds	6.vaid kange - KA_Ana	og_secongs. kor_prz_min,	HO	A ROLPIJAN, ROLPIJA	ax, Kr_BUI, CILE_P_J	nn, crue_or_max, crue	Une Joint, Citte Joe Joa	x = 0 to 15	
35       Visionerate_transceiver_block:0:nstv.jxcv_nstive_s10_etile_0jalt_xxvr_nstve_optional_rcfg_logic       Datarate = 30.0 Gbps         30       x       I       =       3         36       I       I       I       I         36       Image: the test in seconds       Image: the test in seconds       Image: the test in seconds         36       Image: the test in seconds       Image: the test in seconds       Image: test in seconds         36       Image: test in seconds       Image: test in seconds       Image: test in seconds         36       Image: test in seconds       Image: test in seconds       Image: test in seconds         36       Image: test in seconds       Image: test in seconds       Image: test in seconds         36       Image: test in seconds       Image: test in seconds       Image: test in seconds         36       Image: test in seconds       Image: test in seconds       Image: test in seconds         36       Image: test in seconds       Image: test in seconds       Image: test in seconds       Image: test in seconds         36       Image: test in seconds       Image: test in seconds       Image: test in seconds       Image: test in seconds         36       Image: test in seconds       Reset in seconds       Reset in seconds       Image: test in seconds       Image: t	transceiver joldci:Dinstrijkovr_torx_instijkovr_native_golgel_golge_Datarete = 30.0 Gbps  ords									
nstance Table 36 Visenerate_transceiver_block:0:instrijkovr_native_s10_etile_0[alt_xovr_native_optional_rcfg_logic Datarate = 30.0 Gbps inter to test in seconds 3 v x 1 v = 3 Seconds 36 Read channel_0 channel_1 channel_2 channel_3 channel_4 channel_5 channel_6 channel Reset Reset	transceiver jelod::03instrijkovr_pative_s10_etile_0jelit_xovr_pative_optional_rcfg_jogic Detarate = 30.0 Gbps									
36       Visionerate_transceiver_block:0xinstv/cor_pastve_p10_etile_0jait_xxvr_native_optional_rcfg_logic       Datarate = 30.0 Gkps         30       x       1       =       3         36       36         Read         dannel_0       dannel_1         dannel_3       dannel_4         dannel_0       dannel_1         dannel_3       dannel_4         Reset	transceiver block:03instruktor_toxt_instlucer_native_g10_etile_0jait_ucer_native_gaboral_rcfg_jogic Datarate = 30.0 Gbps  onds  e = 3 Seconds  dannel_0 channel_1 channel_2 channel_3 channel_4 channel_5 channel_5 channel_7  Reset  Start PRBS  1.8  1.8  1.8  1.8  1.8  1.8  1.8  1.	istance Table								
ine to test in seconds 3 x I v = 3 Seconds ag.path + Channel 36 Read Read Channel_0 dhannel_1 dhannel_2 dhannel_3 dhannel_4 dhannel_5 dhannel_6 dhannel Reset Reset Res	ands and and and and and and and and	36 \Generate_transce	iver_block:0:instx]xcvr_t	wrx_inst[xcvr_native_s]	0_etile_0]alt_xcvr_nati	ve_optional_rcfg_logic	Datarate = 30.0 Gbps			
3 x 1 x = 3 Seconds         3 x 1 x = 3 Seconds         36         36         Read         6         1 Best Reset         8 Start PRBS         5 Start PRBS         5 Start PRBS         5 Start PRBS         6         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B         1 B	wins         w = 3 Seconds         nel         dhannel_0       dhannel_1       dhannel_2       dhannel_3       dhannel_4       dhannel_5       dhannel_6       dhannel_7         Reset       Reset       Reset       Reset       Reset       Reset       Reset       Reset         Start PRBS         1L8       1L8       1L8       1L8       1L8       1L8       1L8       1L8         IADP       IADP       IADP       IADP       IADP       IADP       IADP       IADP         Reset BER         Read BER       Reset BER       Reset BER       Reset BER       Reset BER       Reset BER       Reset BER         8       **       **       **       **       **       **       **       **       **       **	ine to test in successful								
3 v x 1 v = 3 Seconds         ag_path + Channel         36         Read         dhannel_0       dhannel_1         dhannel_1       dhannel_2         dhannel_3       dhannel_4         dhannel_6       dhannel_5         dhannel_7       dhannel_8         dhannel_8       Reset         Reset       Reset         Reset       Reset         Reset       Reset         10       Start PRBS         Start PRBS       Start PRBS <td>o       * 3 Seconds         nel         dhannel_0       channel_1       channel_2       channel_3       channel_4       channel_5       channel_6       channel_7         Reset       Reset       Reset       Reset       Reset       Reset       Reset       Reset         Start PRBS         11.8       11.8       11.8       11.8       11.8       11.8       11.8         14.0P       IADP       IADP       IADP       IADP       IADP       IADP         Reset BER         8       **       **       **       **       **       **       **       **</td> <td>me to test in seconds</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	o       * 3 Seconds         nel         dhannel_0       channel_1       channel_2       channel_3       channel_4       channel_5       channel_6       channel_7         Reset       Reset       Reset       Reset       Reset       Reset       Reset       Reset         Start PRBS         11.8       11.8       11.8       11.8       11.8       11.8       11.8         14.0P       IADP       IADP       IADP       IADP       IADP       IADP         Reset BER         8       **       **       **       **       **       **       **       **	me to test in seconds								
ag_path + Channel 36 Read channel_0 channel_1 channel_2 channel_3 channel_4 channel_5 channel_6 channel channel_0 channel_1 channel_1 channel_2 channel_3 channel_4 channel_6 channel channel_0 channel_1 chann	diannel_0       diannel_1       diannel_2       diannel_3       diannel_4       diannel_5       diannel_6       diannel_7         Reset	3 v X 1 v	= 3 Seconds							
36         Read         dhannel_0       dhannel_1       dhannel_2       dhannel_3       dhannel_4       dhannel_5       dhannel_6       dhannel         Reset	diamel_0       diamel_1       diamel_2       diamel_3       diamel_4       diamel_5       diamel_6       diamel_7         Reset       Reset <t< th=""><th>an nath + Channel</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	an nath + Channel								
Read       dannel_0       dannel_1       dannel_2       dannel_3       dannel_4       dannel_5       dannel_6       dannel         6       Reset	diannel_0       diannel_1       diannel_2       diannel_3       diannel_4       diannel_5       diannel_6       diannel_7         Reset	w source and								
Read       dannel_0       dannel_1       dannel_2       dannel_3       dannel_4       dannel_5       dannel_6       dannel         6       Reset	dannel_0       dannel_1       dannel_2       dannel_3       dannel_4       dannel_5       dannel_6       dannel_7         Reset       Reset <t< td=""><td>-30</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	-30								
dhannel_0       dhannel_1       dhannel_2       dhannel_3       dhannel_4       dhannel_5       dhannel_6       dhannel_6         Reset	dannel_0       dannel_1       dannel_2       dannel_3       dannel_4       dannel_5       dannel_6       dannel_7         Reset       Reset <t< td=""><td>Read</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Read								
Reset       Reset <threset< th=""> <threset< th=""> <thre< td=""><td>Reset       Reset       <th< td=""><td></td><td>channel 0</td><td>channel 1</td><td>channel 2</td><td>channel 3</td><td>channel 4</td><td>channel 5</td><td>channel 6</td><td>channel 7</td></th<></td></thre<></threset<></threset<>	Reset       Reset <th< td=""><td></td><td>channel 0</td><td>channel 1</td><td>channel 2</td><td>channel 3</td><td>channel 4</td><td>channel 5</td><td>channel 6</td><td>channel 7</td></th<>		channel 0	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	channel 7
6     Start PRBS     Start PRBS <t< td=""><td>6     Start PRBS       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1</td><td></td><td>Reset</td><td>Reset</td><td>Reset</td><td>Reset</td><td>Reset</td><td>Reset</td><td>Reset</td><td>Reset</td></t<>	6     Start PRBS       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1		Reset	Reset	Reset	Reset	Reset	Reset	Reset	Reset
6       Start PRBS	6       Start PRBS									
I.B       I	I.B       I.D       I.D       IADP       IA	6	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS	Start PRBS
IADP         IADP <th< td=""><td>IADP     IADP     IADP     IADP     IADP     IADP     IADP     IADP     IADP       Reset BER     Reset BER<td></td><td>1.8</td><td>1.8</td><td>11.6</td><td>1.8</td><td>□ 1LB</td><td>1.5</td><td>1.8</td><td><b>1.8</b></td></td></th<>	IADP     IADP     IADP     IADP     IADP     IADP     IADP     IADP     IADP       Reset BER     Reset BER <td></td> <td>1.8</td> <td>1.8</td> <td>11.6</td> <td>1.8</td> <td>□ 1LB</td> <td>1.5</td> <td>1.8</td> <td><b>1.8</b></td>		1.8	1.8	11.6	1.8	□ 1LB	1.5	1.8	<b>1.8</b>
7         Reset BER         Reset	7     Reset BER     Reset BER <td></td> <td>IADP</td> <td>IADP</td> <td>IADP</td> <td>IADP</td> <td>IADP</td> <td>IADP</td> <td>IADP</td> <td>IADP</td>		IADP	IADP	IADP	IADP	IADP	IADP	IADP	IADP
Read BER READ READ READ READ READ READ READ RE	Read BER     Read								and an and a second second second	-
Read BER R	Read BER       8	<b>7</b>	Denat BED	Decat BED	Decet RED	Denat BED	Decat BED	Decet RED	Darat BED	Recet DED
	8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	7	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER	Reset BER
		7	Reset BER Read BER	Reset BER Read BER	Reset BER Read BER	Reset BER Read BER	Reset BER Read BER	Reset BER Read BER	Reset BER Read BER	Reset BER Read BER

- 1. Comments
- 2. Instance table
- 3. Time to test
- 4. Individual tab for each PHY
- 5. Read button for each PHY
- 6. Reset button for each channel in PHY
- 7. ILB and adaptation
- 8. Reset and read Bit Error Rate (BER)

	Status						
9	CDR_lock_to_data	Unlocked	Unlocked	Unlocked	Unlocked	Unlocked	Unlocked
	TX_ready	High	High	High	High	High	High
	RX_ready	Low	Low	Low	Low	Low	Low
	Transmitter						
10	VOD_attenuation	0	0	0	0	0	0
	post_tap1	0	0	0	0	0	0
	pre_tap1	0	0	0	0	0	0
	pre_tap2	0	0	0	0	0	0
	pre_tap3	0	0	0	0	0	0
	11	Default $\checkmark$	Default 🗸				
		Apply	Apply	Apply	Apply	Apply	Apply
12	Receiver_Adaptation						
<b>U</b>	GS1	0	0	0	0	0	0
	GS2	0	0	0	0	0	0
	RF_B0	0	0	0	0	0	0
	RF_B1	0	0	0	0	0	0
	GAINLF	0	0	0	0	0	0
	GAINHF	8	8	8	8	8	8
	RF_P2	0	0	0	0	0	0
	RF_P1	0	0	0	0	0	0
	RF_P0	0	0	0	0	0	0
13	RX_Analog_Settings						
	RF_P2_min	-10	-10	-10	-10	-10	-10
	RF_P2_max	10	10	10	10	10	10
	RF_P1_min	0	0	0	0	0	0
	RF_P1_max	15	15	15	15	15	15
	RF_BOT	0	0	0	0	0	0
	CTLE_LF_min	0	0	0	0	0	0
	CTLE_LF_max	15	15	15	15	15	15
	CTLE_HF_min	0	0	0	0	0	0
	CTLE_HF_max	15	15	15	15	15	15

- 9. PMA status parameters
- 10. PMA Transmitter parameters
- 11. Load recipes
- 12. PMA receiver adaptation parameters
- 13. PMA RX analog settings parameters

CIRCUID CONTRACT											
1. To use this tool ADME	should be Enabled for acc	esing PMA registers									
2.Capability register sh	ould be enabled for readin	g CDRLOCK register									
3.For PAM4 design, con	sider only even channels.	This is fixed from Quart	us 18.1 onwards.								
4.Valid Range - Transm	itter. VOD_Attenuation = 6	to 31. Post_tap 1, Pre_	tap1, Pre_tap2 = -31 to	o 31. Pre_tap3 = -1 to -	+1						
5.Valid Range - Receive	er_Adaptation. GS1, GS2 =	0 to 3. RF_80 = 0 to 5.	RF_81 = 0 to 8. GAINL	F, GAINLF = 0 to 15. R	F_P2 = -10 to 10. RF_P	1 = 0 to 15. RF_P0 = -1	15 to 15				
6.Valid Range - RX_Ana	log_Settings. RF_P2_min,	RF_P2_max = -10 to 10	N. RF_P1_min, RF_P1_m	ax, RF_BOT, CTLE_LF_	min, CTLE_LF_max, CTL	E_HF_min, CTLE_HF_ma	ex = 0 to 15				lineten en telelle linte
											Instance table lists
											all the DHVs that a
stance Table											all the Firis that a
35 VGenerate transc	eiver Nock-Dinstylucie b	very institutor native st	0 etile 0 alt vovr oats	en ontional refer lasie	Datarate = 30.0 Ohrs				•		added to the tool
o ponerote_conse	ere Secondaria de la c	and an	of the Color Over Dise	- Cohon a Cohonde	Denne - Sore obje						
										-	
3 v x 1 v	= 3 Seconds										
a to test in seconds x 1 v g_path + Channel 36	= 3 Seconds										
3 v x 1 v g_path + Channel 36	= 3 Seconds										
e to test in seconds 3 v x 1 v 1 path + Channel 36 Read	= 3 Seconds	channel_1	channel_2	channel_3	channel_4	channel_5	channel_6	channel_7	channel_8	dame 9	Tool automatically
to test in seconds	= 3 Seconds channel_0 Reset	channel_1 Reset	channel_2 Reset	channel_3 Reset	channel_4 Reset	channel_5 Reset	channel_6 Reset	channel_7 Reset	channel_8 Reset	channel 9 Reset	Tool automatically finds all the chann
e to test in seconds 3 v x 1 v a path + Channel 36 Read	a 3 Seconds channel_0 Reset Start PRBS	channel_1 Reset Start PRBS	channel 2 Reset Start PRBS	channel_3 Reset Start PRBS	channel_4 Reset Start PRBS	channel_5 Reset Start PRBS	channel_6 Reset Start PRBS	channel_7 Reset Start PRBS	channel_8 Reset Start PRBS	channel_9 Reset Start PR85	Tool automatically finds all the chann
to test in seconds 3 ↓ x 1 ↓ path + Channel 36  Read	etannel_0 Reset Start PR85	channel_1 Reset Start PRBS	channel_2 Reset Start PRBS	channel_3 Reset Start PRBS	channel_4 Reset Start PRBS	channel_S Reset Start PRBS 18	channel_6 Reset Start PRBS	channel_7 Reset Start PRBS	channel_8 Reset Start PRBS	channel 9 Reset Start PRBS	Tool automatically finds all the chann in the instantiated
to test in seconds 3 v x 1 v 	= 3 Seconds channel_0 Reset Start PRBS DBB H0P	channel_1 Reset Start PRBS D 1.B HDP	channel_2 Reset Start FRBS 1.8 MDP	channel_3 Reset Start PRBS 1.8 IADP	channel_4 Reset Start PRBS 1.B IADP	channel_S Reset Start PRBS 1.6 IADP	channel_6 Reset Start PRBS 1.8 NDP	channel_7 Reset Start PRBS 1.5 IADP	channel_8 Reset Start PRBS 1.0 HADP	channel 9 Reset Start PRBS 1.6 MDP	Tool automatically finds all the chann in the instantiated PHY instance
to test in seconds 3 v x 1 v Lpath + Channel 36 Read	= 3 Seconds dearnel_0 Reset LB LD Reset LD Reset LD Reset ER	channel_1 Reset Start RBS LB HADP Reset BER	channel_2 Reset Start FR85 ILB Keset BER	channel_3 Reset Start PRBS LB Keset BER	dunnel_4 Reset Start PRBS 18 IAB Reset BER	channel_5 Reset Start PRBS 18 IADP Reset BER	channel_6 Reset Start PRBS 1LB IADP Reset BER	channel_7 Reset Start PRBS 1.5 IAS IAOP Reset BER	channel_8 Reset Start PRBS 1.0 ILD Reset BER	channel_9 Reset Start PRBS D.B. HOP Reset BER	Tool automatically finds all the chann in the instantiated PHY instance
e to test in seconds 3 v x 1 v 	= 3 Seconds charmel_0 Reset Start PABS IIII IADP Reset IER Reset IER Reset IER	channel_1 Reset Start PRBS LB HADP Reset BER Reset BER	channel_2 Reset Start PRBS LLB ADP Reset BER Read BER	channel_3 Reset Start PRBS ILB ADP Reset BER Read BER	channel_4 Reset Start PRBS LB HADP Reset BER Reset BER Read BER	channel_5 Reset Start PRB5 ILB IADP Reset BER Reset BER	channel_6 Reset Start PRBS ILB WADP Reset BER Reset BER	channel_7 Reset Start PRBS IB IADP Reset BER Reset BER Reset BER	channel_8 Reset Start PRBS I LB I ADP Reset BER Reset BER	channel_9 Reset Start PRBS II:B IADP Reset BER Read BER	Tool automatically finds all the chann in the instantiated PHY instance



nments												
. To use this tool ADME s	should be Enabled for acc	esing PMA registers										
.Capability register shot	sider only even channels.	This is fixed from Quart	is 18.1 onwards.									Poads the DM/
Valid Range - Transmitt	ter. VOD Attenuation = 0	) to 31. Post tap1. Pre	tap1. Pre tap2 = -31 to	31. Pre tap3 = -1 to +	-1							Reads the FMP
Valid Range - Receiver		0 to 3. RF_B0 = 0 to 5.	RF_B1 = 0 to 8. GAINL	F, GAINLF = 0 to 15. RF	_P2 = -10 to 10. RF_P	1 = 0 to 15. RF_P0 = -1	5 to 15					attributes for a
Valid Range - RX_Anak	og_Settings. RF_P2_min, I	RF_P2_max = -10 to 10	). RF_P1_min, RF_P1_mi	ax, RF_BOT, CTLE_LF_m	in, CTLE_LF_max, CTLE	E_HF_min, CTLE_HF_ma	x = 0 to 15					
												the channels ir
	** ** ** ** ** ** ** **	** ** ** ** ** ** ** **					** ** ** ** ** ** ** **					that DUV
ice Table												that i fif
VGene ate transcei	iver block:0:instx1xcvr b	xrx instlxcvr native s1	0 etile 0 alt xcvr nativ	e optional rcfg logic	Datarate = 30.0 Gbos							
A A A A A A A A A A A A A A A A A A A												
to test in seconds												
v x 1 v	= 3 Seconds											
x 1 v	= 3 Seconds											
a to test in seconds 3 ↓ x 1 ↓ _path + C tannel	= 3 Seconds											
v x 1 v path + Channel	= 3 Seconds											
v x 1 v path + Ciannel	= 3 Seconds											
v x 1 v path + Channel	= 3 Seconds					danal 5	danal 6					
x 1 v path + C annel	= 3 Seconds	channel_1	channel_2	channel_3	channel_4	channel_5	channel_6	channel_7	channel_8	channel 0		D
x 1 v path + C annel	= 3 Seconds channel_0 Reset	channel_1 Reset	channel_2 Reset	channel_3 Reset	channel_4 Reset	channel_5 Reset	channel_6 Reset	channel_7 Reset	channel_8 Reset	channel 9 Reset		Reset PMA
x 1 v path + Crannel	= 3 Seconds channel_0 Reset Start PRBS	channel_1 Reset Start PRBS	channel_2 Reset Start PRBS	channel_3 Reset Start PRBS	channel_4 Reset Start PRBS	channel_5 Reset Start PRBS	channel_6 Reset Start PRBS	channel_7 Reset Start PRBS	channel_8 Reset Start PRBS	Reset Start PR8S		Reset PMA
to test in seconds	= 3 Seconds channel_0 Reset Start PRBS ] 1.B	channel_1 Reset Start PRBS ILB	channel_2 Reset Start PRBS ILB	channel_3 Reset Start PRBS ILB	channel_4 Reset Start PRBS	channel_5 Reset Start PRBS ILB	channel_6 Reset Start PRBS ILB	channel_7 Reset Start PRBS	channel_B Reset Start PRBS	Reset Start PRBS		Reset PMA parameters of
to test in seconds	= 3 Seconds channel_0 Reset Start PRBS LB LB	channel_1 Reset Start PRBS ] 1.B IADP	channel_2 Reset Start PRBS ] 1.B IADP	channel_3 Reset Start PRBS ] 1.B iADP	channel_4 Reset Start PRBS ] 1.B IADP	channel_5 Reset Start PRBS 1.B IADP	channel_6 Reset Start PRBS ] 1.B iADP	channel_7 Reset Start PRBS ILB IADP	channel_8 Reset Start PRBS ] 1.B IADP	Reset Start PR8S 11.B iADP		Reset PMA parameters of each channel
to test in seconds	= 3 Seconds channel_0 Reset Start PRBS IIB IADP Reset BER	channel_1 Reset Start PR8S LB IADP Reset BER	chennel_2 Reset Start PR65 LL6 ADP Reset 6ER	channel_3 Reset Start PRBS LLB ADP Reset BER	channel_4 Reset Start PRBS ] 1.B IADP Reset BER	channel_5 Reset Start PR85 LL6 IADP Reset BER	channel_5 Reset Start PRBS LLB IADP Reset BER	channel_7 Reset Start PRBS ILB IADP Reset BER	channel_8 Reset Start PR8S 11.B IADP Reset BER	Chorod 9 Reset Start PR8S ILB IADP Reset BER		Reset PMA parameters of each channel
to test # peconds	= 3 Seconds channel_0 Reset Start PRBS ILB ILB Reset BER Reset BER Reset BER	channel_1 Reset Start RRBS ILB IADP Reset BER Read BER	channel_2 Reset Start PR85 11.6 IADP Reset BER Read BER	channel_3 Reset Start PR85 1.8 ADP Reset BER Reset BER	channel_4 Reset Start PRBS 1.18 IADP Reset BER Read BER	channel_5 Reset Start PRBS ILB IADP Reset BER Read BER	channel_6 Reset Start PR85 11.6 IADP Reset BER Read BER	channel_7 Reset Start PRBS 11.6 IADP Reset DER Read DER	channel_8 Reset Start PRBS 11.6 IADP Reset BER Read BER	Channel 2 Reset Start PR85 LB LD Reset BER Read BER		Reset PMA parameters of each channel
to test # peconds	= 3 Seconds channel_0 Reset Start PRBS ILB IADP Reset BER Reset BER Reset BER	channel_1 Reset Start PRBS ]1.B iADP Reset BER Read BER	channel_2 Reset Start PRBS ]1.B iADP Reset BER Read BER	channel_3 Reset Start PRBS ] 1.B iADP Reset BER Read BER	channel_4 Reset Start PRBS ] 1.B iADP Reset BER Read BER	channel_5 Reset Start PRBS ] 1.B iADP Reset BER Read BER	channel_6 Reset Start PRBS ]1.B iADP Reset BER Read BER	channel_7 Reset Start PRBS ] 1.B iADP Reset BER Read BER	channel_S Reset Start PRBS ] 1.B iADP Reset BER Read BER	Reset Start PR8S 11.8 iADP Reset BER Read BER		Reset PMA parameters of each channel



Comments  I. To use this tool ADME should be Enabled for accesing PMA registers 2. Capability register should be Enabled for reading CDRLOCK register 3. For PAM4 design, consider only even channels. This is fixed from Quartus 18.1 onwards. 4. Valid Range - Fracenter_Adaptation. GS1, GS2 = 0 to 3. RF_D91 = 0 to 8. GAINEF, GAINEF = 0 to 15. RF_P1
1.To use this tool ADME should be Enabled for accesing PMA registers 2.Capability register should be enabled for reading CORLOCK register 3.For PAM4 design, consider only even channels. This is fixed from Quartus 18.1 onwards. 4.Valid Range - Receiver_Adaptation. GS1, GS2 = 0 to 3. RF_B0 = 0 to 5. RF_B1 = 0 to 15. RF_P1 = 0 to 15. RF_P1 = 0 to 15. RF_P1 = 0 to 15. RF_P2 = -10 to 10. RF_P1 = 0 to 15. RF_P2 = -10 to 10. RF_P1 = 0 to 15. RF_P2 = -10 to 10. RF_P1 = 0 to 15. RF_P0 = -15 to 15 6.Valid Range - RC_Analog_Settings, RF_P2_min, RF_P2_max = 0 to 10. RF_P1_min, CTLE_JF_max, CTLE_JF_min, CTLE_JF_max = 0 to 15
C.Capability register should be enabled for reading CREACK register 3.For PAM4 design, consider only even channels. This is fixed from Quartus 18.1 onwards. 4.Valid Range - Fransmitter, VOO, Attenuation = 0 to 31. Fort_tap1, Pre_tap2 = -31 to 31. Pre_tap3 = -1 to +1 5.Valid Range - Receiver_Adaptation. GS1, GS2 = 0 to 3. RF_B0 = 0 to 5. RF_B1 = 0 to 8. GAINEF, GAINEF = 0 to 15. RF_P1 = 0 to 15. RF_P0 = -15 to 15 6.Valid Range - RX_Analog_Settings. RF_P2_min, RF_P2_max = -10 to 10. RF_P1_min, CTLE_IF_max, CTLE_IF_min, CTLE_IF_max = 0 to 15
3.For PMAY design, consider only even channels. This first def form Quartus 18.1 onwards. 4.Valid Range - Transmitter. VOD_Attenuation = 0 to 31. Post_ttap1, Pre_tap2 = -31 to 31. Pre_tap3 = -1 to +1 5.Valid Range - Receiver_Adaptation. GS1, GS2 = 0 to 3. RF_B0 = 0 to 5. RF_B1 = 0 to 5. GAINEF, GAINEF = 0 to 15. RF_P1 = 0 to 15. RF_P0 = -15 to 15 6.Valid Range - RX_Analog_Settings. RF_P2_min, RF_P2_max = -10 to 10. RF_P1_min, RF_P1_min, CILE_JF_min, CIL
4. Valid Range - Transmitter. VOC. Attenuation = 0 to 31. Post_tap1, Pre_tap2 = -31 to 31. Pre_tap2 = -10 to 15. RF_P1 = 0 to
S. Vald Range - Receiver_Adaptation. GS1, GS2 = 0 to 3. RF_B0 = 0 to 5. RF_B1 = 0 to 8. GAINEF, GAINEF = 0 to 15. RF_P2 = -10 to 10. RF_P1 = 0 to 15. RF_P0 = -15 to 15 6. Vald Range - RX_Analog_Settings. RF_P2_min, RF_P2_max = -10 to 10. RF_P1_min, RF_P1_max, RF_B0T, CTLE_JF_min, CTLE_JF_min, CTLE_JF_min, CTLE_JF_max = 0 to 15 ADDP for each
6.Vald Range - RX_Analog_Settings. RF_P2_min, RF_P2_max = -10 to 10. RF_P1_min, RF_P1_max, RF_B0T, CTLE_JF_min, CTLE_JF_min, CTLE_JF_max = 0 to 15  iADP for each
iADP for each
channel
35 Generate_transcever_boocrunns (trove_tox), instruction_tox), and the sub-tenerative control of tenerative c
Time to test in seconds
$3 \lor x$   $1 \lor = 3$ Seconds
jtag_path + Channel
36
Reau
channel_ channel_1 channel_2 channel_3 channel_4 channel_5 channel_6 channel_7 channel_8 channel_9
Re <mark>et</mark> Reset
Start PRBS
Reset BER
Read BER

### **Changing PMA configurations**

Dropdown lists all the PMA configuration. To change the PMA configuration, select a configuration from the list and click on Apply button.



When custom configuration is selected, parameters GS1, GS2, RF\_B0, and RF\_B1 becomes editable allowing you to enter custom values.



## Log File

Log file is created when you use the tool and it is located in {script\_executed\_directory}/log

→ Girisankar, Sree Balaji → system_console → script	ots → log			
	Name	Date modified	Туре	Size
ا <sub>م</sub> ا	🕼 etile_transceiver_status_283julian_10hr_59min_58sec_sgirisan-mobl.csv	10/10/2018 11:13 AM	Microsoft Excel Comma Separat	3 KB
	🕼 etile_transceiver_status_283julian_14hr_22min_15sec_sgirisan-mobl.csv	10/10/2018 2:35 PM	Microsoft Excel Comma Separat	2 KB
*	🕼 etile_transceiver_status_283julian_14hr_58min_04sec_sgirisan-mobl.csv	10/10/2018 2:59 PM	Microsoft Excel Comma Separat	1 KB

TIME	JTAG_PAT CHAN	(	CDRLOCK TX_	_ready RX_r	eady VO	D_Atte Post	t_tap1 Pre_	tap1 Pre_	_tap2 Pre_ta	ap3 GS1	GS2	RF_B1	RF_B0	GAINLF	GAINH	HF RF_P2	RF_P1	RF_P0	RF_BOT	CTLE_LF	_r CTLE_L	F_r CTLE_H	F_ICTLE_H	F_IRF_F	2_mirRF_P2	2_maRF_P1	_mirRF_P1_	max
353julia	n_/devices/1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	15	0	15	-10	10	0	15
353julia	n_/devices/1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	15	0	15	-10	10	0	15
353iulia	/devices/1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	15	0	15	-10	10	0	15

Every time the Read button is clicked, all the PMA parameters are logged as shown in the figure along with time, PHY, and channel number.



## **E-TILE TRANSCEIVER TUNING TOOL**

### Intel® Stratix® 10 E-Tile Transceiver Tuning Tool Algorithm



Only for 28G (LR) PMA parameter configurations (PVT verified)

Comments																											
** ** ** ** **																											
Tool_vQ18p1_V	3p3 based on Q18.0.1																										
1. To use this to	ol ADME should be Enable	d for accesing P	MA registers																								
2. Capability re	gister should be enabled fo	r reading CDRL	OCK register																								
LogFile in the fo	llowing Location> C:/Us	ers/sgirisan/sys	tem_console/	/scripts/log/Etile_ti	ning_353).	ilian_09hr_51m	in_01sec_sgi	risan-mobl.	sv																		
Lecende																											
1 JADR - Initial	adaptation																										
2. cADP : Conti	nous adaptation																										
3. iVAL : initial s	ettings for adaptation mor	lule																									
4. Ch En : Enal	ble the measurement (Doe	sn't power dowr	n the channel)	)																							
4. SWP En : Sw	eep Enable																										
If check	ed, parameter will be in th	e manual mode	with value so	ecified in the comb	o box																						
If not d	ecked, the module will be	adapting																									
5. PRBS_En : If	Checked, PRBS31 will be s	elected, if Und	necked, User t	traffic will be selec	ted																						
Profile Lookup Tab	Ne																										
	GS1(IADP)	GS2(iADP)	)	RF_B0(IADP)	RF_B1	L(IADP)	RF_B1(cAD	P)	RF_P1_MAX	(IVAL)	LF_MAX(IVA	L) RF	BOT(IVAL)														
Custom	0123	0123	0	0123	0123	45678	adaptive		Default	0	Default	Def	fault														
28G_LR	2	2	1	1	1		8		6	1	2	10	6 . It	_													
28G_VSR 10G_30db	adaptive 2	adaptive 1	a 1	1	adaptiv 5	/e	adaptive		6		l	Def	fault	-													
56G_LR	1	1	2	2	8		adaptive		1			40		_													
56G_VSR	0	0	3	3	3		adaptive		6	C	Default	10															
JTAG_List																											
36 \Generate	_transceiver_block:0:insb	:xcvr_brx_inst	t xcvr_native	_s10_etile_0 alt_>	cvr_native	_optional_rcfg_	logic Datar	ate = 30.0	Gbps																		
Time to test in sec	ronds																										
2																											
3 V X 1	V = 5 Secon	15																									
jtag_path + Chan	nel																										
36																											
Run(S	weep)																										
						(ADP)			(ADP)			(IADP)			(ADP)			CADP)		(val)	(ival)	(Val)					
	Custom			DDBS31		1	1		1	1		2	2		8	8		1									
Channel	Custom		Turing an	0000		1 V	- CC1(mm)	CMD 5-	· · ·	CC2(mm)	CMD 5-	05 00(min)	DE 20(mm)	CH10 E-	05.01(min)	05.01(mm)			÷.,		IT MAY	DE DOT			-400	Charles	Time
unannel	Profile	Power_on	iuning_en	PKBS	II SWP_	en GS1(min)	GSI(max)	swir_en	usz(min)	GS2(max)	SWP_B	Kr_BU(min)	KF_BU(max)	swir_en	Kr_B1(min)	Kr_BT(wax)	11 F	r_B1	11	KPI_MAX	LMAX	KP_BUI	II IADP		CADP	status	ime
Channel_	U Custom		$\bowtie$	PRBS31 V		1 ~	1 ~		1 ~	1 ~	$\bowtie$	2 ~	2 ~		8 ~	8 ~		ADP 🗸	11	defauit 🧹	default 🗸	default 🗸		nabled			
Channel_	1 Custom 、	′ 🗹		PRBS31 🗸		1 ~	1 ~		1 ~	1 ~		2 ~	2 ~		8 ~	8 ~	1	ADP 🗸	11	default $\lor$	default 🗸	default 🗸		nabled			



21

nments								
** ** ** ** **	** ** ** ** ** ** **		• • • • • • • • • • •					** ** ** ** ** ** ** ** ** **
	2 based on Q18.0.1							
. To use Fis tool	ADME should be Enable	ed for accesing PMA re	gisters					
. Capability regist	ter should be enabled f	or reading CDRLOCK re	egister					
LogFile in the follow	wing Location> C:/U:	sers/sgirisan/system_o	onsole/scripts/log/Etile_t	uning_352julian_18hr_4	3min_11sec_sgirisan-n	robl.csv		
egends								
. IADP : Initial ada	aptation							
. CALIP : Continou	us adaptation							
. IVAL : INITIAL Sett	ungs for adaptation mo	aue						
. Cn_En : Enable	the measurement (Doe	isn't power down the c	nannei)					
. SWP_En : Swee	ep Enable							
If checked,	, parameter will be in th	e manual mode with vi	alue specified in the com	bo box				
If not ched	ked, the module will be	adapting						
5. PRBS_En : If Ch	hecked, PRBS31 will be	selected, if Unchecked	, User traffic will be sele	cted				
file Lookup Table								
	GS1(IADP)	GS2(iADP)	RF_B0(IADP)	RF_B1(iADP)	RF_B1(cADP)	RF_P1_MAX(IVAL)	LF_MAX(iVAL)	RF_BOT(IVAL)
Eustom	0123	0123	0123	012345678	adaptive	Default	Default	Default
28G_LR	2	2	1	1	8	6	2	10
28G_VSR 10G_30db 1	2	auapuve 1	auapuve 1	5	adaptive	6	1	Default
56G_LR	1	1	2	8	adaptive	1	1	40
56G_VSR	0	0	3	3	adaptive	6	Default	10
G_List								
36 \Generate_tr	ransceiver_block:0:inst	x[xcvr_brx_inst]xcvr_	native_s10_etile_0 alt_	xcvr_native_optional_rcl	g_logic Datarate =	30.0 Gbps		
ne to test in secon	nds							
3 🗸 x 1	<ul> <li>— 3 Second</li> </ul>	ıds						
a anth i Channel								
J_path + Channel								
36								
		5			-		6	
Run(Swe	eep) Likil							

М

- 1. Comments
- 2. Profile look-up table
- 3. JTAG list with data rate
- 4. Button to start measurement
- 5. Preloaded PVT verified profiles
- 6. Initial adaptation PMA parameter
- 7. Continuous adaptation PMA parameter
- 8. Adaptation module initial values
- 9. Enable/disable continuous adaptation

Programmable Solutions Group

PRBS31 ~

PRBS31 🗸 📗

Channel

Channel C

Channel\_1



 $\checkmark$ 

 $\checkmark$ 

2 🗸

2 🗸 📈

 $\checkmark$ 



Each PHY instance is added to the tool as a separate tab.

Tool automatically finds the channels in the instantiated PHY instance

jtag_path	+ Channel														
36 3	7														
	Run(Sweep)	🗌 kill													
						П		(iADP)			(iADP)			(iADP)	
Г	•	Custom 🗸			PRBS31 $\lor$	Ш	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸
d	hannel	Profile	Power_on	Tuning_en	PRBS	Ш	SWP_En	GS1(min)	GS1(max)	SWP_En	GS2(min)	GS2(max)	SWP_En	RF_B0(min)	RF_B0(max
d	hannel_(	Custom $\lor$			PRBS31 $\lor$	Ш	$\checkmark$	1 🗸	1 ~	$\checkmark$	1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸
d	hannel_:	Custom $\lor$			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 ~	$\checkmark$	1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸
d	hannel_ <mark>:</mark>	Custom $\checkmark$	$\checkmark$	$\checkmark$	PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	$1 \lor$	1 🗸	$\checkmark$	2 🗸	2 🗸
d	hannel_:	Custom $\checkmark$		$\checkmark$	PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 ~	$\checkmark$	1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸
d	hannel_•	Custom $\checkmark$	$\checkmark$	$\checkmark$	PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 ~	$\checkmark$	1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸
d	hannel_:	Custom 🗸	$\checkmark$	$\checkmark$	PRBS31 $\checkmark$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸
d	hannel_ <mark>(</mark>	Custom $\checkmark$	$\checkmark$	$\checkmark$	PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 ~	$\checkmark$	1 ~	1 ~	$\checkmark$	2 🗸	2 🗸
d	hannel_ <mark>;</mark>	Custom 🗸	$\checkmark$	$\checkmark$	PRBS31 $\checkmark$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸
d	hannel_8	Custom 🗸	$\checkmark$	$\checkmark$	PRBS31 $\checkmark$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸
d	hannel_ <mark>s</mark>	Custom $\sim$	$\checkmark$	$\checkmark$	PRBS31 $\lor$	П	$\checkmark$	1 ~	1 ~	$\checkmark$	1 ~	1 ~	$\checkmark$	2 🗸	2 🗸
d	hannel_: <mark>0</mark>	Custom $\lor$	$\checkmark$	$\checkmark$	PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 ~		2 🗸	2 🗸





## **E-TILE TRANSCEIVER TUNING STEPS**

### Step 1 : Select the Profile

Step1 : Combo box consist of preloaded profile. Select one.

oath + Channel																	
5 37																	
Run(Sweep)	🗌 kill																
					П		(iADP)			(iADP)			(iADP)			(iADP)	
	Custom	$\sim$		PRBS31 $\lor$	П		1 🗸	1 ~		1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
Channel	Profile	Power_on	Tuning_en	PRBS	Ш	SWP_En	GS1(min)	GS1(max)	SWP_En	GS2(min)	GS2(max)	SWP_En	RF_B0(min)	RF_B0(max)	SWP_En	RF_B1(min)	RF_B1(max
Channel_0	Custon	~		PRBS31 $\lor$	П		1 ~	1 🗸	$\square$	$1 \lor$	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
Channel_1	Cul ्रुगो 28G_LR			PRBS31 $\lor$	П	$\checkmark$	1 ~	1 🗸	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 ~
Channel_2	28G_VSR 10G_30db			PRBS31 $\lor$	П		1 🗸	1 ~		1 ~	1 🗸		2 🗸	2 🗸		8 🗸	8 ~
Channel_3	56G_LR 56G_VSR			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 🗸		2 🗸	2 🗸		8 🗸	8 ~
Channel_4	Custom	~	$\checkmark$	PRBS31 $\lor$	П	$\checkmark$	1 ~	1 ~		1 ~	1 ~		2 🗸	2 🗸		8 🗸	8 ~
Channel_5	Custom	$\sim$		PRBS31 $\lor$	П		1 ~	1 🗸		1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 ~
Channel_6	Custom	$\sim$		PRBS31 $\lor$	П		1 ~	1 ~	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 ~
Channel_7	Custom	~	$\checkmark$	PRBS31 $\lor$	П	$\square$	1 ~	1 🗸	$\checkmark$	1 🗸	1 🗸		2 🗸	2 🗸		8 🗸	8 ~
Channel_8	Custom	$\sim$		PRBS31 $\lor$	П		1 ~	1 ~	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 ~
Channel_9	Custom	$\sim$	$\checkmark$	PRBS31 $\lor$	П	$\checkmark$	1 ~	1 ~		1 🗸	1 🗸		2 🗸	2 🗸		8 🗸	8 ~
Channel_10	Custom	~ 🗸		PRBS31 🗸	п		1 ~	1 ~		1 ~	1 ~		2 🗸	2 🗸		8 🗸	8 ~

#### Profiles are validated across PVT (except custom)



### **Observe the Updated Profile Setting**

ath + Channel																	
37																	
Run(Sweep)																	
					П		(iADP)			(iADP)			(iADP)			(iADP)	
	Custom 🗸			PRBS31 V	ï		1 ~	1 ~		1 ~	1 ~	$\checkmark$	2 ~	2 🗸		8 🗸	8 ~
Channel	Profile	Power_on	Tuning_en	PRBS	П	SWP_En	GS1(min)	GS1(max)	SWP_En	GS2(min)	GS2(max)	SWP_En	RF_B0(min)	RF_B0(max)	SWP_En	RF_B1(min)	RF_B1(max)
Channel_0	28G_LR 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 🗸		2 🗸	2 🗸		8 🗸	8 ~
Channel_1	$28G_VSR$ $\lor$	$\checkmark$		PRBS31 $\lor$	П	$\checkmark$	1 ~	1 ~		1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 ~
Channel_2	10G_30db $\lor$	$\checkmark$		PRBS31 $\lor$	П		1 ~	1 ~		1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
Channel_3	56G_LR 🗸 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸		8 🗸	8 🗸
Channel_4	56G_VSR $\lor$	$\checkmark$	$\checkmark$	PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸		8 🗸	8 🗸
Channel_5	Custom 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 ~		2 🗸	2 🗸		8 🗸	8 ~
Channel_6	Custom 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 🗸		2 🗸	2 🗸		8 🗸	8 🗸
Channel_7	Custom 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 🗸		2 🗸	2 🗸		8 🗸	8 🗸
Channel_8	Custom 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 🗸		2 🗸	2 🗸		8 🗸	8 🗸
Channel_9	Custom 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 ~		2 🗸	2 🗸		8 🗸	8 ~
Channel_10	Custom 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 ~

### Observe the changes after applying the profile in channel 0,1,2,3,4,5

### Step 3 : (If required) Change the Minimum and Maximum Value of PMA Parameter

jtag_path + Channel 36 37																	yo ma mi va	u to select the aximum and nimum sweep lues
Run(Sweep)					П		(iADP)			(iADP)			(iADP)			(IADP)		
	Custom 🗸			PRBS31 $\lor$	п	$\checkmark$	1 ~	1		1 ~	1 ~		2 ~	2	$\checkmark$	<u> </u>	8 ~	
Channel	Profile	Power_on	Tuning_en	PRBS	Ш	SWP_En	GS1(min)	GS1(max	) SWP_En	GS2(min)	GS2(max)	SWP_En	RF_B0(min)	RF_B0(max)	SWP_En	RF_B1(min)	RF_B1(max	0
Channel_0	28G_LR 🗸	$\checkmark$	$\checkmark$	PRBS31 $\checkmark$	Ш	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_1	$28G_VSR \lor$	$\checkmark$		PRBS31 $\checkmark$	П	$\checkmark$	$1 \lor$	1 🗸	$\checkmark$	1 🗸	$1 \lor$	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_2	10G_30db $\lor$			PRBS31 $\checkmark$	П		1 ~	1 🗸		1 🗸	1 ~		2 🗸	2 🗸		8 🗸	8 ~	
Channel_3	56G_LR 🗸	$\checkmark$	$\checkmark$	PRBS31 $\checkmark$	П		1 🗸	1 🗸		1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_4	56G_VSR $\lor$			PRBS31 $\checkmark$	П	$\checkmark$	1 🗸	1 🗸		1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_5	Custom 🗸			PRBS31 $\checkmark$	П	$\checkmark$	1 🗸	1 🗸		1 🗸	1 ~		2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_6	Custom 🗸 🗸			PRBS31 $\checkmark$	П		1 🗸	1 🗸		1 🗸	1 ~		2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_7	Custom 🗸			PRBS31 $\checkmark$	П		1 🗸	1 🗸		1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_8	Custom 🗸			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_9	Custom $\lor$			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 🗸		1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	
Channel_10	Custom 🗸			PRBS31 $\lor$	п		1 ~	1 ~		1 ~	1 ~		2 🗸	2 🗸		8 🗸	8 ~	



28

### Step 4 : (If needed) Check/Uncheck for Manual/Adaptive PMA Parameter

						-										_	in encentear aber mit be
jtag_path + Channel 36 37 Run(Sweep)																	able to sweep PMA parameter that can be edited using the combo box
					п		(iADP)			(iADP)			(iADP)			(iADP)	or
	Custom 🗸			PRBS31 $\lor$	п	⊵	1 ~	1 ~		1 ~	1 🗸		2 🗸	2 🗸		8 ~	
Channel	Profile	Power_on	Tuning_en	PRBS	П	SWP_En	GS 1(min)	GS1(max)	SWP_En	GS2(min)	GS2(max)	SWP_En	RF_B0(min)	RF_B0(max)	SWP_En	RF_B1(mi	If unchacked the PMA
Channel_0	28G_LR 🗸	$\checkmark$	$\checkmark$	PRBS31 $\lor$	н	$\checkmark$	1 🗸	1 ~	$\checkmark$	1 ~	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 ~	narameter will be in
Channel_1	$28G_VSR \lor$		$\checkmark$	PRBS31 $\checkmark$	П	$\checkmark$	$1 \lor$	1 🗸	$\checkmark$	$1 \lor$	1 🗸	$\checkmark$	2 🗸	2 🗸		8 ~	parameter will be in
Channel_2	10G_30db $\lor$			PRBS31 $\checkmark$	П	$\checkmark$	1 ~	1 ~	$\checkmark$	1 ~	1 🗸		2 🗸	2 🗸	$\checkmark$	8 ~	adaptation mode
Channel_3	56G_LR 🗸 🗸			PRBS31 $\sim$	П	$\checkmark$	1 ~	1 ~	$\checkmark$	1 ~	1 ~		2 🗸	2 🗸	$\checkmark$	8 ~	8 🗸
Channel_4	56G_VSR 🗸			PRBS31 $\lor$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~		2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
Channel_5	Custom 🗸			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 ~	$\checkmark$	1 ~	1 🗸		2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
Channel_6	Custom 🗸 🗸			PRBS31 $\lor$	П		1 🗸	1 ~	$\checkmark$	1 🗸	1 🗸		2 🗸	2 🗸	$\checkmark$	8 ~	8 🗸
Channel_7	Custom 🗸			PRBS31 $\sim$	П	$\checkmark$	1 ~	1 ~	$\checkmark$	1 ~	1 ~		2 🗸	2 🗸	$\checkmark$	8 ~	8 🗸
Channel_8	Custom 🗸			PRBS31 $\lor$	П	$\checkmark$	1 ~	1 ~	$\checkmark$	1 ~	1 ~		2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
Channel_9	Custom 🗸			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 ~	$\checkmark$	1 🗸	1 🗸		2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
Channel_10	Custom 🗸			PRBS31 $\sim$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~		2 🗸	2 🗸	$\checkmark$	8 ~	8 🗸



### Step 4 : Click "Sweep" to Start the Measurement

Step 4 : Click "Sweep" to start the measurement

_jtag_pa	th + Channel																	
36	37																	
	Run(Sweep)																	
						П		(iADP)			(iADP)			(iADP)			(iADP)	
		Custom 🗸 🗸			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
	Channel	Profile	Power_on	Tuning_en	PRBS	Ш	SWP_En	GS1(min)	GS1(max)	SWP_En	GS2(min)	GS2(max)	SWP_En	RF_B0(min)	RF_B0(max)	SWP_En	RF_B1(min)	RF_B1(max)
	Channel_0	28G_LR 🗸	$\checkmark$	$\checkmark$	PRBS31 $\checkmark$	Ш	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
	Channel_1	28G_VSR $\lor$	$\checkmark$	$\checkmark$	PRBS31 $\checkmark$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
	Channel_2	10G_30db $\smallsetminus$			PRBS31 $\lor$	П	$\checkmark$	1 ~	1 🗸	$\checkmark$	1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
	Channel_3	56G_LR $\lor$			PRBS31 $\lor$	П		1 ~	1 🗸		1 ~	1 ~		2 🗸	2 🗸		8 🗸	8 ~
	Channel_4	56G_VSR $\lor$	$\checkmark$		PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸		8 🗸	8 🗸
	Channel_5	Custom $\lor$			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸		8 🗸	8 🗸
	Channel_6	Custom 🗸			PRBS31 $\checkmark$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸		8 🗸	8 🗸
	Channel_7	Custom $\lor$			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸		8 🗸	8 🗸
	Channel_8	Custom $\lor$			PRBS31 $\lor$	П	$\checkmark$	1 🗸	1 🗸	$\checkmark$	1 🗸	1 🗸	$\checkmark$	2 🗸	2 🗸		8 🗸	8 🗸
	Channel_9	Custom $\lor$			PRBS31 $\lor$	П	$\checkmark$	$1 \sim$	1 🗸	$\checkmark$	$1 \lor$	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸
	Channel_10	Custom 🗸			PRBS31 $\checkmark$	П	$\checkmark$	1 🗸	1 🗸		1 ~	1 ~		2 🗸	2 🗸		8 🗸	8 🗸



### Step 5 : Check the Status Column

Step 5 : Check for the "Done" status

jtag_path + Channe	8																											
36 37																												
Run(Sw	eep)																											
					Ш		(iADP)			(iADP)			(iADP)			(iADP)		Ш	(cADP)	Ш	(iVal)	(iVal)	(iVal)	Ш				
	Custom 🗸			PRBS31 $\lor$	Ш	$\checkmark$	1 ~	1 🗸	$\checkmark$	1 🗸	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш		Ш				Ш				
Channel	Profile	Power_on	Tuning_en	PRBS	Ш	SWP_En	GS1(min)	GS1(max)	SWP_En	GS2(min)	GS2(max)	SWP_En	RF_B0(min)	RF_B0(max)	SWP_En	RF_B1(min)	RF_B1(max)	Ш	RF_B1	Ш	RF_P1_MAX	LF_MAX	RF_B0T	Ш	iADP	cADP	Status	Time
Channel_0	$28G_LR$ $\lor$			PRBS31 $\lor$	Ш		1 ~	1 🗸	$\checkmark$	1 🗸	1 🗸		2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $ \smallsetminus $	Ш	default $ \smallsetminus $	default $ \smallsetminus $	default $ \smallsetminus $	Ш	Enabled		Done	2 sec
Channel_1	$28GVSR$ $\lor$			PRBS31 $\lor$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $ \smallsetminus $	Ш	default $\sim$	default $ \smallsetminus $	default $\lor$	П	C Enabled		Done	3 sec
Channel_2	10G_30db $ \smallsetminus $			PRBS31 $\checkmark$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $ \smallsetminus $	Ш	default $\lor$	default $\lor$	default $ \smallsetminus $	Ш	Enabled		Done	1 sec
Channel_3	56G_LR 🗸			PRBS31 $\checkmark$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $\sim$	Ш	default $\lor$	default $\lor$	default $\lor$	Ш	Enabled		Done	2 sec
Channel_4	56G_VSR $\lor$			PRBS31 $\checkmark$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $ \smallsetminus $	Ш	default $ \smallsetminus $	default $\lor$	default $ \smallsetminus $	Ш	C Enabled		Done	2 sec
Channel_5	Custom $\lor$			PRBS31 $\checkmark$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $\sim$	Ш	default $ \smallsetminus $	default $\lor$	default $ \smallsetminus $	Ш	Enabled			
Channel_6	Custom $\lor$			PRBS31 $\checkmark$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~	$\checkmark$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $\sim$	Ш	default $\lor$	default $\lor$	default $\lor$	Ш	C Enabled			
Channel_7	Custom $\lor$			PRBS31 $\lor$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~	$\square$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $ \smallsetminus $	Ш	default $\lor$	default $\lor$	default $\lor$	Ш	C Enabled			
Channel_8	Custom $\lor$			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 ~	$\square$	2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $\sim$	Ш	default $\lor$	default $\lor$	default $\lor$	Ш	C Enabled			
Channel_9	Custom 🗸			PRBS31 $\lor$	П		1 ~	1 ~		1 ~	1 ~		2 🗸	2 🗸		8 🗸	8 🗸	Ш	ADP $ \smallsetminus $	Ш	default $ \smallsetminus $	default $\lor$	default $ \smallsetminus $	Ш	Enabled			
Channel_1	Custom 🗸			PRBS31 $\lor$	П		1 ~	1 ~	$\checkmark$	1 ~	1 ~		2 🗸	2 🗸	$\checkmark$	8 🗸	8 🗸	Ш	ADP $ \smallsetminus $	Ш	default $\sim$	default $ \smallsetminus $	default $ \smallsetminus $	П	C Enabled			



### **Measurement Log Files**

Comments						
***	* *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***	** ** ** ** ** ** ** **	* ** ** ** ** ** ** **	** ** ** ** ** *	* ** ** ** ** ** ** ** **	* ** ** ** ** **
Tool_v1p0 based on Q18.0.1						
1.To use this tool ADME should be Enabled for	accesing PMA registers					
2.Capability register should be enabled for rea	ading CDRLOCK register					
LogFile in the following Location> C:/Users/	kbalakri/system_console/scripts/log/Etile_tuning_196julian_19hr_24min	_52sec_sj-appslab6-40	0.csv			
	The second se					
🗨 🕞 🗢 🚺 🕨 Kurrinchi Balakrishnan 🕨 sy	ystem_console ► scripts ► log					
Organize 👻 🔣 Open 👻 Share with	r Print Burn New forder					
🗙 Favorites	Name	Date modified	Туре	Size		
📃 Desktop	🚳 Etile_tuning_196julian_19hr_24min_52sec_sj-appslab6-400.csv	7/15/2018 7:45 PM	Microsoft Excel C	4 KB		
鷆 Downloads	🖲 Etile_tuning_196julian_19hr_22min_08sec_sj-appslab6-400.csv	7/15/2018 7:22 PM	Microsoft Excel C	1 KB		
🕮 Recent Places	🐴 Etile_tuning_196julian_18hr_25min_26sec_sj-appslab6-400.csv	7/15/2018 6:25 PM	Microsoft Excel C	1 KB		
퉬 Shared Documents	🐴 Etile_tuning_196julian_18hr_18min_03sec_sj-appslab6-400.csv	7/15/2018 6:18 PM	Microsoft Excel C	1 KB		
퉬 Personal Documents	🐴 Etile_tuning_196julian_18hr_16min_20sec_sj-appslab6-400.csv	7/15/2018 6:16 PM	Microsoft Excel C	1 KB		
	👜 Etile_tuning_196julian_18hr_15min_32sec_sj-appslab6-400.csv	7/15/2018 6:15 PM	Microsoft Excel C	1 KB		
🕞 Libraries	👜 Etile_tuning_196julian_18hr_13min_27sec_sj-appslab6-400.csv	7/15/2018 6:13 PM	Microsoft Excel C	1 KB		
Documents	👜 Etile_tuning_196julian_18hr_11min_51sec_sj-appslab6-400.csv	7/15/2018 6:11 PM	Microsoft Excel C	1 KB		
🖻 🎝 Music	🐴 Etile_tuning_196julian_18hr_11min_06sec_sj-appslab6-400.csv	7/15/2018 6:11 PM	Microsoft Excel C	1 KB		
Pictures	🐴 Etile_tuning_196julian_18hr_10min_42sec_sj-appslab6-400.csv	7/15/2018 6:10 PM	Microsoft Excel C	1 KB		
Videos	🐴 Etile_tuning_196julian_18hr_10min_23sec_sj-appslab6-400.csv	7/15/2018 6:10 PM	Microsoft Excel C	1 KB		
	冯 Etile_tuning_196julian_18hr_09min_46sec_sj-appslab6-400.csv	7/15/2018 6:09 PM	Microsoft Excel C	1 KB		



		1	2		3			4	5	6		7	3	3		9
TIME jtag_path CHAN	PRBS	PROFILE	iADP-c	ADF iAD	P_DONE_TIME(m	is) CDRLOC	K TX_rea	dy RX_rea	dy BIT_ERROR L	F HF	GS1	GS2	RF_B1	RF_BO	R	F_P1_MALF_MAX RF_BOT
352julian_19hr_34i\Generate	0 prbs31	28G_LR	iADP		899.	124	0	1	0 304908358 a	dp_0x08 adp_	0x00 fix_1	fix_1	fix_8	fix_2	fi	x_defaul1fix_defaul1fix_default
352julian_19hr_34\\Generate	1 prbs31	28G_VSR	iADP		859.	492	0	1	0 231114845 a	dp_0x08 adp_	0x00 fix_1	fix_1	fix_8	fix_2	fi	x_defaul1fix_defaul1fix_default
352julian_19hr_34i\Generate	2 prbs31	10G_30dl	b iADP		891.	195	0	1	0 185447860 a	dp_0x08 adp_	0x00 fix_1	fix_1	fix_8	fix_2	fi	x_defaul1fix_defaul1fix_default
352julian_19hr_34i\Generate	3 prbs31	56G_LR	iADP		914.	578	0	1	0 272251744 a	dp_0x08 adp_	0x00 fix_1	fix_1	fix_8	fix_2	fi	x_defaul1fix_defaul1fix_default
352julian_19hr_34i\Generate	4 prbs31	56G_VSR	iADP		891.	917	0	1	0 293939161 a	dp_0x08 adp_	0x01 fix_1	fix_1	fix_8	fix_2	fi	x_defaul1fix_defaul1fix_default

Legend	Description
1	The column will contain the name of the profile which user selected before sweeping the PMA parameters
2	Bit error are logged after iADP and after pADP, this columns depicts when the bit error was measured
3	If iADP was successful, it will show the total time taken else, it will show "0"
4	Whether the TX and RX ready is high?
5	Number of accumulated bit error
6	LF and BF value, They will be always in adaptive mode
7	GS1,GS2 , value ( Manual sweep value or adapted value)
8	RF_B1,RF_B0 , value ( Manual sweep value or adapted value)
9	RF_PI_MAX, LF_max, RF_B0T are either user defined values or sof default values





### Steps to Apply the Best PMA Configuration



