

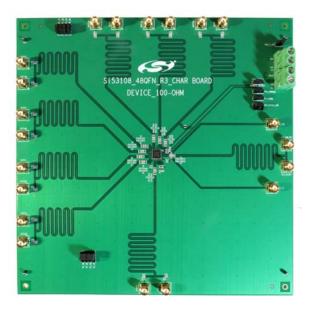
# Si53108 EVALUATION BOARD USER'S GUIDE

### **Description**

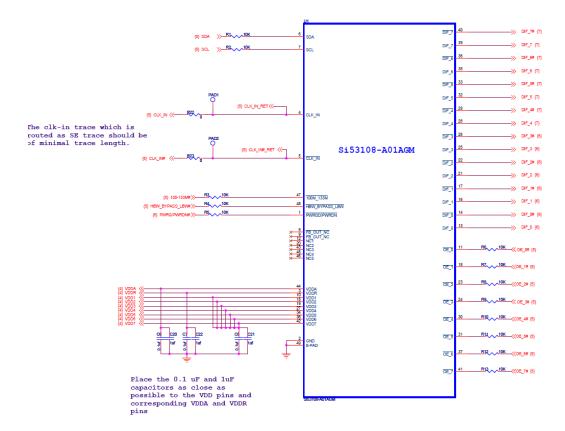
The Si53108-EVB can be used to evaluate the Si53108-A01AGM, an 8-output PCle Gen1/2/3 buffer that can operate in either fanout or zero delay mode.

#### **Features**

- 10-inch traces to evaluate signal integrity
- The signal traces of the input and outputs have a single-ended impedance of 50 ohms, and differential impedance of 100 ohms.
- The series resistance on the outputs are set to match to this impedance design.
- DC pin controls per data sheet specification.
- Ability to measure input to output propagation delay.
- Ability to measure PCIe clock jitter.
- Ability to program features of Si53108-A01AGM via I<sup>2</sup>C interface.



### 1. Schematics



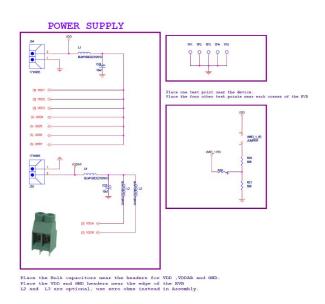


Figure 1. Schematic 1

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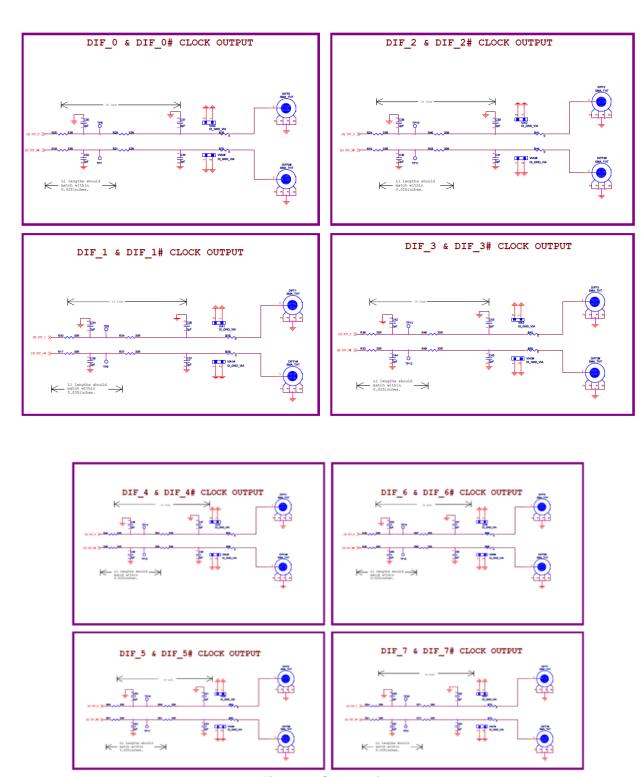


Figure 2. Schematic 2



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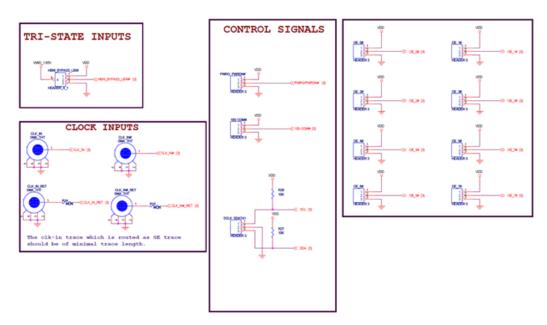


Figure 3. Schematic 3

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## 2. Input and Power Supply Sequencing

The Si53108-A01AGM should be powered up with supply at both the VDD and VDD\_IO nodes (at the jumpers available on the EVB). A 100MHz or 133MHz HCSL input clock should be applied to pins 8 and 9. There is no internal or on-board resistive termination, therefore HCSL termination needs to be provided at the input if needed by the driver. The input clock should be applied only after the supplies are stable.

### 3. Quick Start Guide:

- 1. Enable supply on the VDD pin.
- 2. Enable supply on the VDDIO pin.
- 3. Apply input clock on the SMA connectors CLK\_IN/CLK\_IN# and measure the return path clock on CLK\_IN\_RET, CLK\_IN# RET.

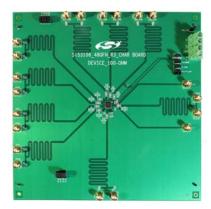


Figure 4. Clock Return Path

- a. The input clock measured at J32, J33 needs a 50-ohm termination on the scope.
- b. The attenuation will be 1:10 after the above termination. Appropriate scaling (10x) needs to be set at the scope to adjust for the scaling.
- 4. The output clocks are now set up and can be measured on an oscilloscope or frequency domain measurement instrument.

# 4. Usage of the EVB

- 1. Once the EVB has been set up, the following can be evaluated:
- 2. Signal integrity of the device when driving 10-inch, 100-ohm differential traces.
- 3. Effect of capacitance load on output signal integrity.
- 4. Output-to-output skew over 10-inch traces.
- 5. Input-to-output prorogation delay in BYPASS, HBW, and LBW modes using the input clock return path.
- 6. Measuring the power consumption of the device.
- 7. Modification of the device settings via the I<sup>2</sup>C interface.



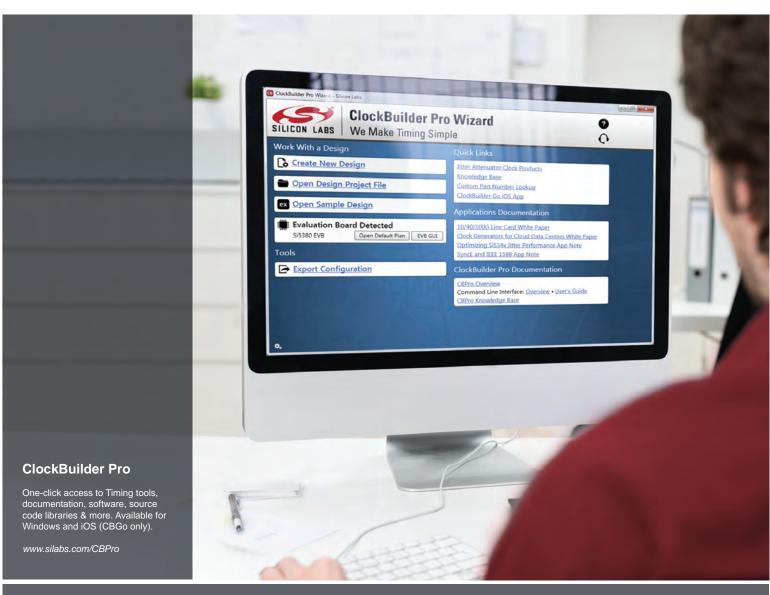
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# 5. Bill of Materials

		The state of the s	Total Carolina Control	Description	manual accounts	COLUMN TO SECURE
20 DIFF1# DIFF1 DIFF2#	SMA_THT	SMA_THT	LTI-SASF54GT	Vertical PCB Thru Hole SMA Jack	LIGHTHORSE	Component Reference-305-PD-13-1158
DIFF2, DIFF3#, DIFF3,						
DIFF4# DIFF4 DIFF5#						
DIEFA DIFFA DIFFA						
DIEE7# DIEE7 DIEE0#						
DEED OF BEDET						
CHANGE IN NET						
CLK IN RETICIK IN						
CLK IN						
305.07.08	0.1uf	CC0402	C1005X5R1A104K	CAP CER 0.1UF 10V 10% X5R 0402	TDK Corporation	
3 C20 C21 C22	1of	CC0402	C1005X5R1A105K	CAP CER 1UF 10V 10% X5R 0402	TDK Corporation	
30.24.028	10uf	C3216.A	TAGGMODUAT	CAP TAMT 10LIF 20V 20% 1206	Section 1	Component Reference, 105, PD, 13, 1158
ないしょう にょ にな にょう にょう	3/6	CC0402	C1006COG1H000C	CAD CER 20F 40V NPO 0402	TDK Connection	
C3E C37 C38 C30 C40 C44		-		2000 0000000000000000000000000000000000		
040 040 040 040 044						
C42, C43, C44, C40, C40, C47,						
C48,C49,C50,C51,C52,C53,						
C54,C55,C56,C57,C58,C60,	25	90			200	
051,062						
THBW BYPASS LBW	HEADER 4 1	BERG4P	PZC04SABN	COMM HEADER, 100 SINGL STR 4POS	Sullins Connector Solutions	Component Reference 305-PD-13-1158
20 124 126	4744066	+7+40EE	4744055	COMMITTED MELOCY SEGUE & SEGUE DOD	Disparit Confinct	
2 004,000	000000000000000000000000000000000000000	1 14303	011100000000000000000000000000000000000	CONTRACTOR DECORATE SERVICE SERVICE	Tipemix Comaci	
4 L1,L2,L3,L4	DLM15DDZZ13N1D	LUMUZ	BLM15BUZZ1SM1D	FERRILE CHIP 220 URIN 30,0MA 0402	Mustata Electronics North America	
11 SCLK SDATATOE 1#, OF 2#.	HEADER 3	BERGJP	PZC03SABN	CONN HEADER, 100 SINGL STR 3POS	Sullins	Companent Reference 305-PD-13-1158
OE 3#,0E 4#,0E 5#,0E 6#,						
OE 7#,100-133t/#,						
PWRG PWRDN#: OE 0#						
2 PAD1 PAD2	PAD	PAD	The same of the sa			NOT A PART
14 R1 R2 R1 R4 R5 R5 R7 R8	1000	BC0402	RC0402.IR-0710kg	BES 10K OHM 1/15W 6% 0402 SMD	Vacen	
Do D4/ D4/ D4/ D4/ D9/		1.00 to 1.00 t				
KSKIUKIIKIZKISKO.						
KZ/						
2 R14,R15	442R	RC0402	RMCF0402FT442R	RES 442 OHM 1/16W 1% 0402	Stackpole Electronics Inc.	
32 R16,R17,R18,R24,R25,R28,	33R	RC0402	ERJ-2RKF33R0X	RES 33.0 OHM 1/10W 1% 0402 SMD	Panasonic - ECG	
R30 R31 R33 R34 R36 R37						
Dea GAN DAY DAY DAK DAK						
0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -						
K48, K49, K51, K52, K54, K55,						
R57,R58,R60,R61,R67,R68,						
R71,R72	100	Contraction of the Contraction o		Section of the sectio		
19 R19 R22 R23 R29 R32 R35	0	RC0402	RC0402JR-070RL	RES 0.0 OHM 1/16W 0402 SMD	Yaged	
R38 R41 R44 R47 R50 R53						
DEC DEG DEC DEC DEC DEC						
DZA						
2000 000	2,400	200000	CONTRACTOR STATES	DEC AND DESCRIPTION OF ASSAULT		
Z PCU, PC	DUR	RCU40Z	KUNDUZIK-U/43K3L	REG 49 SK OFIM 1/10W 176 04UZ SMD	Tageo	
5 TP1, TP2, TP3, TP4, TP5	T POINT B	TP	5001	TEST POINT PC MINI 040°D BLACK	Keystone Electronics	Component Reference 305-PD-13-1158
16 TP6, TP7, TP8, TP9, TP10.	TPOINTB	TESTPOINT				NOT A PART
TP11.TP12.TP13.TP14.TP15.						
TD46 TD47 TD48 TD49 TD90						
TENE 10, 1F 10, 1F 13, 1F20,						
17.11	OCTOBOR SOURCES	11000				TOTAL GREAT
101	SISSING-MULACIN	40711				COSTONER PARI
16 WAT#, VIAT, VIA2#, VIA2,	DI GND VIA	DI GND VIA				NOT A PART
MA3#, VIA3, VIA4#, VIA4,	1977 CONTROLL 19			8		
MAS#, VIAS, VIAS#, VIA6,						
WA7# WA7 WAD# WA0						



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