

SN65DSI86/96 EVM Factory Test Procedure

Version 1.0

1 Equipment Needed:

- Texas Instruments SN65DSI86/96 EVM Rev 3 EVM board. EDGE#: 6570803.
- Standard LCD monitor that supports DisplayPort.
- Multi-meter for measuring voltage.
- Total Phase [Aardvark I2C/SPI controller](#).
- Standard 1-meter or 2-meter DisplayPort cable.
- AC/DC Power Adapter. Any Power adapter with a dc level of 5V to 17V with a positive tip is acceptable.

2 Steps

1. Plug Total Phase Aardvark I2C/SPI controller into PC using a USB2 cable.
 - a. If first time, you will have to install application and the driver. Application SW and driver can be downloaded from Total Phase website.
2. Run Aardvark GUI. Refer to section called “Configure Total Phase Aardvark” in this document
 - a. Load script called, 4DP_4DSI_HBR_1024x600_Color_Bar.xml. Do NOT run script.
3. Plug Total Phase Aardvark I2C/SPI controller into J10 on SN65DSI86/96 EVM board. Make sure pin #1 on Aardvark aligns with pin#1 on J10.



4. Make sure SW2 matches SW2 Settings table in this document.
5. Plug 5V to 17V AC/DC adapter into J13 on SN65DSI86/96EVM board.
6. Move switch, SW6, from OFF to ON position on SN65DSI86/96 EVM board.
7. Measure voltage on LP3 of SN65DSI86/96EVM board. Should measure 1.2V.
8. Measure voltage on LP6 of SN65DSI86/96EVM board. Should measure 3.3V.
9. Measure voltage on LP7 of SN65DSI86/96EVM board. Should measure 1.8V.
10. Plug standard DisplayPort Cable into DisplayPort port on monitor.
11. Make sure monitor video input select has DisplayPort selected.
12. Plug standard DisplayPort cable into J9 on the SN65DSI86/96 EVM board.
13. Run Aardvark script.
 - a. If Color bar is displayed on monitor, then Pass.

3 SW2 Settings

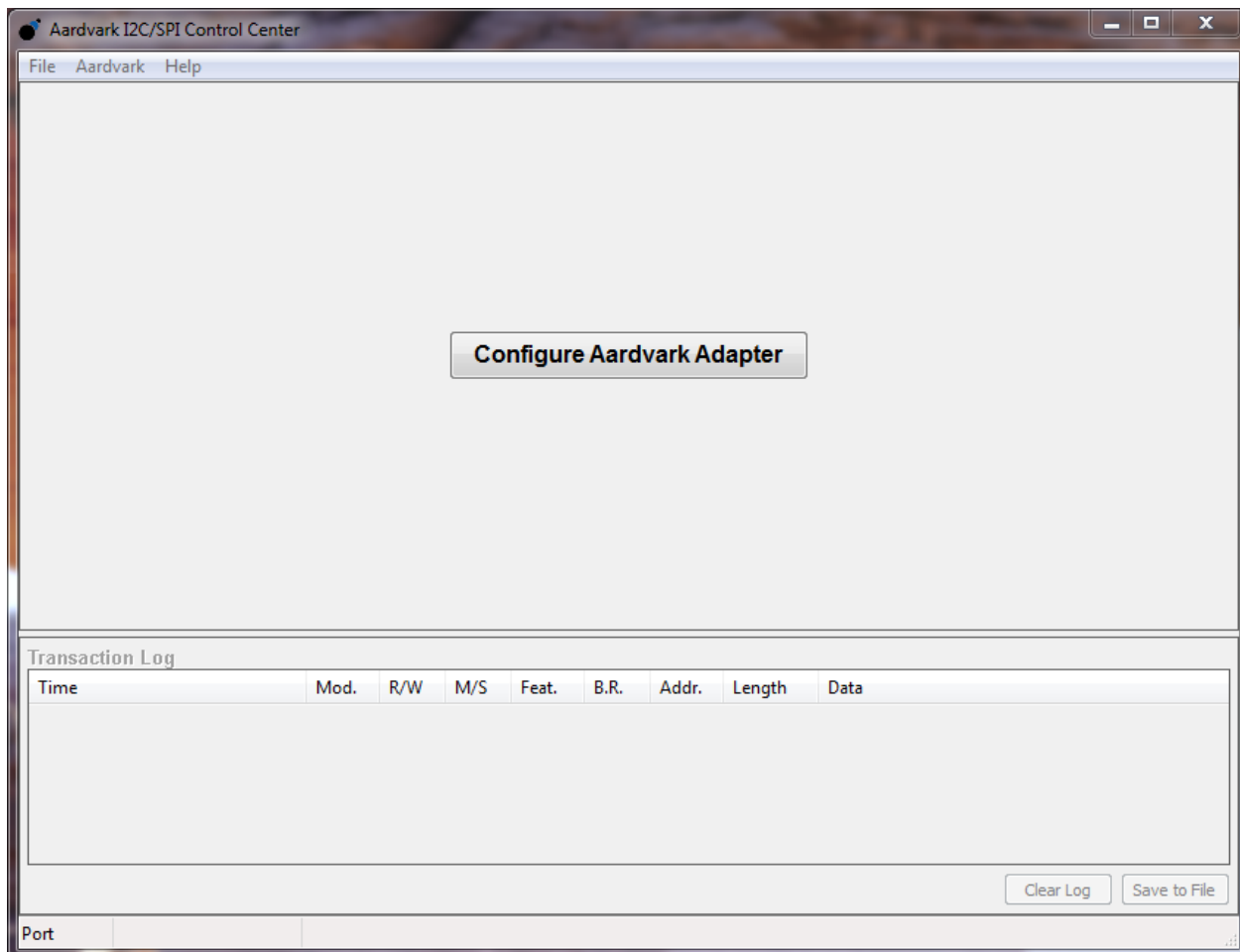
DIP No	SW	Signal Name	Description	DEFAULT CONFIG	
				Open(Off) HIGH	Closed(On) LOW
SW2-1		GPIO1	General Purpose I/O. Defaults to Input. Also used to select REFCLK frequency.	X	
SW2-2		GPIO2	General Purpose I/O. Defaults to Input. Also used to select REFCLK frequency	X	
SW2-3		GPIO3	General Purpose I/O. Defaults to Input. Also used to select REFCLK frequency		X
SW2-4		GPIO4	General Purpose I/O. Defaults to Input.	X	
SW2-5		ADDR	Sets the I2C slave address of the SN65DSIX6 by controlling the ADDR pin. High = 0x2D (Default) Low = 0x2C	X	
SW2-6		TEST1	Reserved. Texas Instruments Use Only		X
SW2-7		TEST2	Reserved. Texas Instruments Use Only. For DP Compliance testing make dip switch position to OFF (high).	X	

DIP No	SW	Signal Name	Description	DEFAULT CONFIG	
				Open(Off) HIGH	Closed(On) LOW
SW2-8		I2C_3V3EN	Enables 3.3V voltage translator for the I2C signals	X	

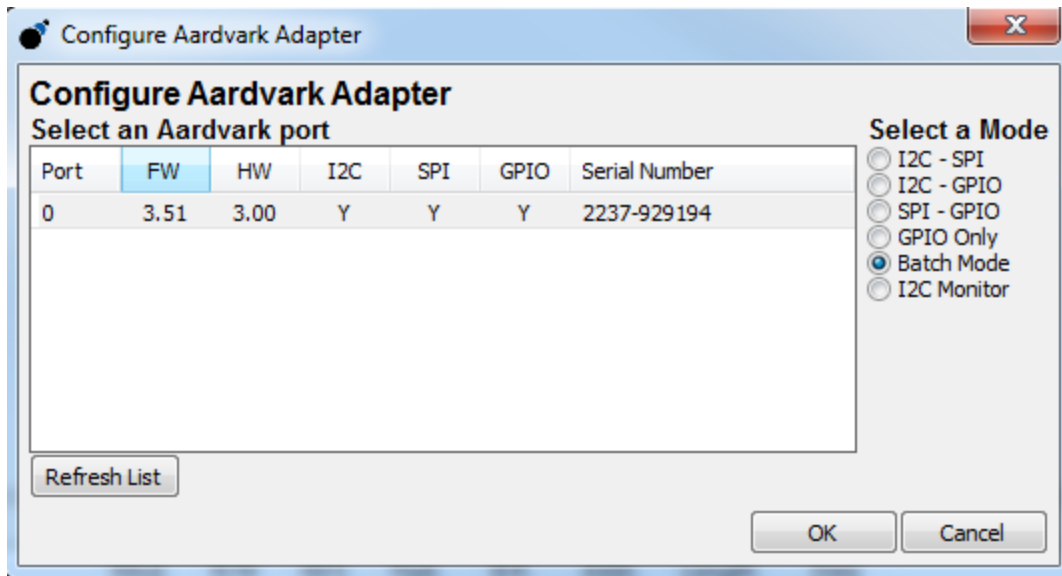
4 Configure Total Phase Aardvark

These are the steps to run Aardvark i2C/SPI Control Center GUI.

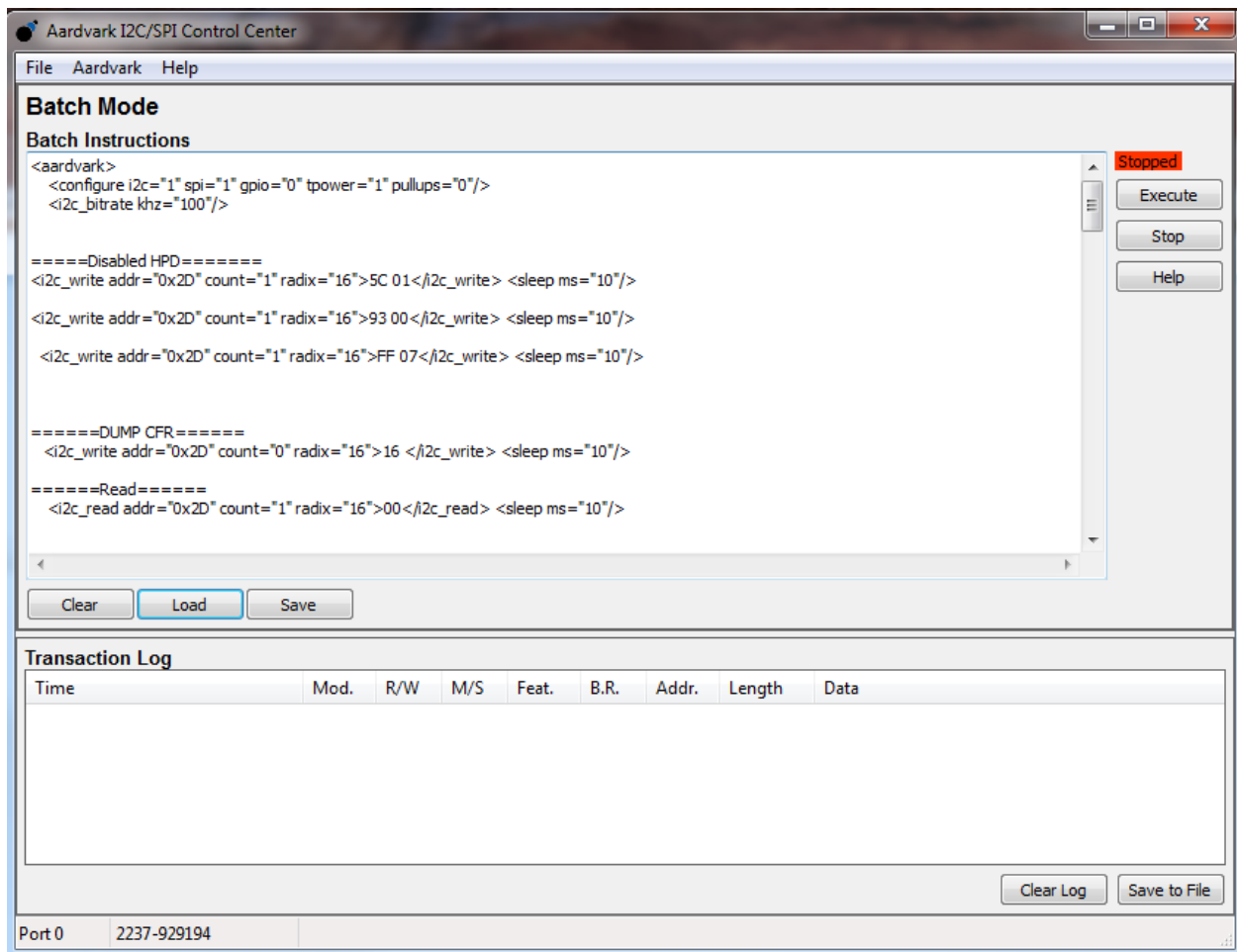
1. Run Aardvark GUI.



2. Click Configure Aardvark Adapter button.
3. Select Mode as Batch mode and select Aardvark Port. The click OK.



- Click Load button and load the Aardvark script called "4DP_4DSI_HBR_1024x600_Color_Bar.xml".



5 Aardvark script

The script below will transmit a color bar to a DisplayPort monitor. The script will configure DSI86 for 4 lanes at HBR (2.7Gbps).

```
<aardvark>
```

```
<configure i2c="1" spi="1" gpio="0" tpower="1" pullups="0"/>
```

```
<i2c_bitrate khz="100"/>
```

```
=====Disabled HPD=====
```

```
<i2c_write addr="0x2D" count="1" radix="16">5C 01</i2c_write> <sleep ms="10"/>
```

```
<i2c_write addr="0x2D" count="1" radix="16">93 00</i2c_write> <sleep ms="10"/>
```

```
<i2c_write addr="0x2D" count="1" radix="16">FF 07</i2c_write> <sleep ms="10"/>
```

```
<i2c_write addr="0x2D" count="1" radix="16">16 01</i2c_write> <sleep ms="10"/>
```

```
<i2c_write addr="0x2D" count="0" radix="16">16 </i2c_write> <sleep ms="10"/>
```

```
=====Read=====
```

```
<i2c_read addr="0x2D" count="2" radix="16">00</i2c_read> <sleep ms="10"/>
```

```
<i2c_write addr="0x2D" count="1" radix="16">FF 00</i2c_write> <sleep ms="10"/>
```

=====Single 4 DSI lanes=====

<i2c_write addr="0x2D" count="1" radix="16">10 26 </i2c_write> <sleep ms="10"/>

=====DSI CLK FREQ=====

<i2c_write addr="0x2D" count="0" radix="16">12 </i2c_write> <sleep ms="10"/>

<i2c_read addr="0x2D" count="2" radix="16">00</i2c_read> <sleep ms="10"/>

=====enhanced framing=====

<i2c_write addr="0x2D" count="1" radix="16">5A 04 </i2c_write> <sleep ms="10"/>

=====Clock pattern =====

<i2c_write addr="0x2D" count="1" radix="16">96 02</i2c_write> <sleep ms="20"/>

=====L0mV HBR=====

<i2c_write addr="0x2D" count="1" radix="16">94 80</i2c_write> <sleep ms="10"/>

=====POST2 0dB =====

<i2c_write addr="0x2D" count="1" radix="16">95 00</i2c_write> <sleep ms="10"/>

=====PLL ENABLE=====

<i2c_write addr="0x2D" count="1" radix="16">0D 01</i2c_write> <sleep ms="10"/>

<i2c_write addr="0x2D" count="0" radix="16">0A</i2c_write> <sleep ms="10"/>

<i2c_read addr="0x2D" count="2" radix="16">00</i2c_read> <sleep ms="10"/>

=====Pre0dB 3 lanes no SSC=====

<i2c_write addr="0x2D" count="1" radix="16">93 30</i2c_write> <sleep ms="10"/>

=====Semi-Auto TRAIN =====

<i2c_write addr="0x2D" count="1" radix="16">96 0A</i2c_write> <sleep ms="20"/>

=====ADDR 0x0A CFR=====

<i2c_write addr="0x2D" count="0" radix="16">96</i2c_write> <sleep ms="20"/>

=====Read=====

<i2c_read addr="0x2D" count="1" radix="16">00</i2c_read> <sleep ms="10"/>

=====CHA_ACTIVE_LINE_LENGTH=====

<i2c_write addr="0x2D" count="2" radix="16">20 00 04</i2c_write> <sleep ms="10"/>

=====CHA_VERTICAL_DISPLAY_SIZE=====

<i2c_write addr="0x2D" count="2" radix="16">24 58 02</i2c_write> <sleep ms="10"/>

=====CHA_SYNC_DELAY=====

<i2c_write addr="0x2D" count="2" radix="16">28 00 00</i2c_write> <sleep ms="10"/>

=====CHA_HSYNC_PULSE_WIDTH=====

<i2c_write addr="0x2D" count="2" radix="16">2C 80 80</i2c_write> <sleep ms="10"/>

=====CHA_VSYNC_PULSE_WIDTH=====

<i2c_write addr="0x2D" count="2" radix="16">30 04 80</i2c_write> <sleep ms="10"/>

=====CHA_HORIZONTAL_BACK_PORCH=====

<i2c_write addr="0x2D" count="1" radix="16">34 28 </i2c_write> <sleep ms="10"/>

=====CHA_VERTICAL_BACK_PORCH=====

<i2c_write addr="0x2D" count="1" radix="16">36 09</i2c_write> <sleep ms="10"/>

=====CHA_HORIZONTAL_FRONT_PORCH=====

<i2c_write addr="0x2D" count="1" radix="16">38 28</i2c_write> <sleep ms="10"/>

=====CHA_VERTICAL_FRONT_PORCH=====

<i2c_write addr="0x2D" count="1" radix="16">3A 01</i2c_write> <sleep ms="10"/>

=====DP_18BPP_EN =====

<i2c_write addr="0x2D" count="1" radix="16">5B 00 </i2c_write> <sleep ms="100"/>

=====COLOR BAR =====

<i2c_write addr="0x2D" count="1" radix="16">3C 10</i2c_write> <sleep ms="100"/>

=====enhanced framing and Vstream enable=====

<i2c_write addr="0x2D" count="1" radix="16">5A 0C </i2c_write> <sleep ms="100"/>

=====DUMP CFR=====

```
<i2c_write addr="0x2D" count="0" radix="16">20</i2c_write> <sleep ms="10"/>
```

```
=====Read=====
```

```
<i2c_read addr="0x2D" count="32" radix="16">00</i2c_read> <sleep ms="10"/>
```

```
</aardvark>
```