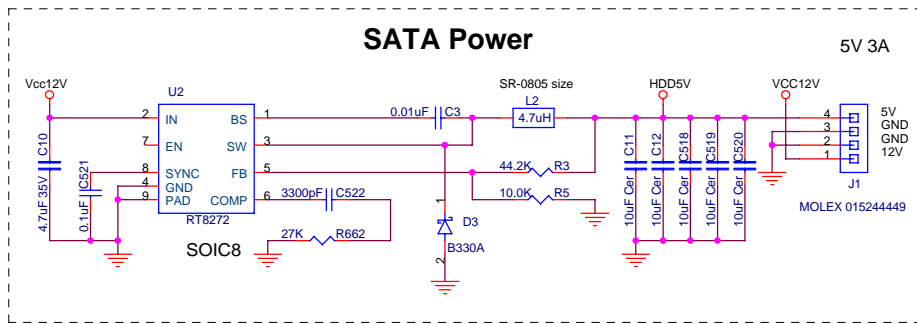
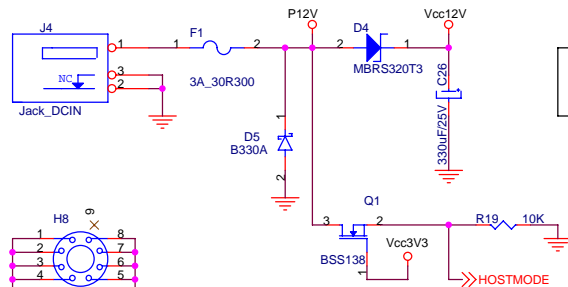


## SATA Power

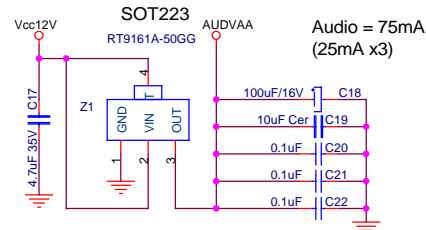


## Power Input

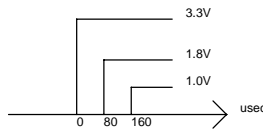
**12V DC**  
Do not use when using as PCI device  
(Power is derived from PCI slot)



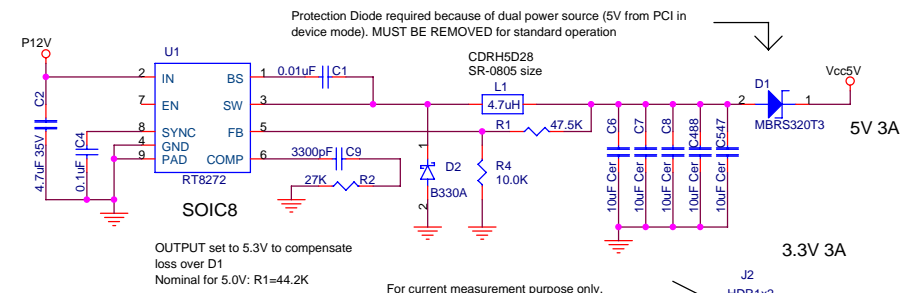
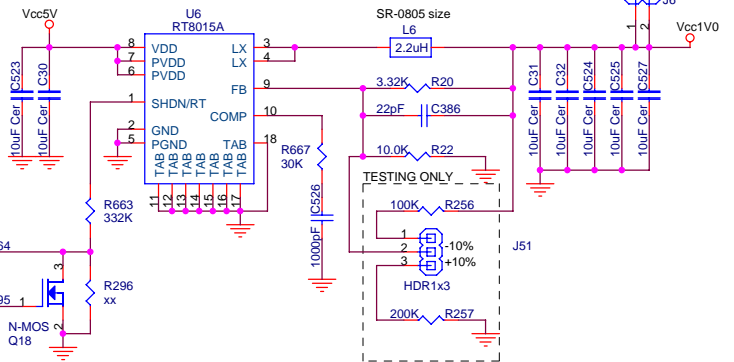
For single Stereo DAC only (25mA),  
use RT9161A-50GG in SOT23-3!



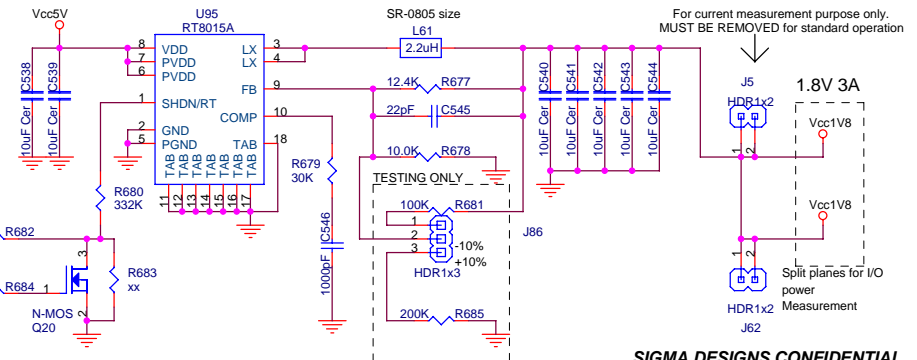
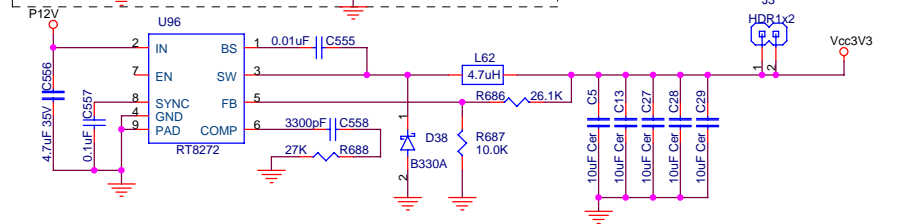
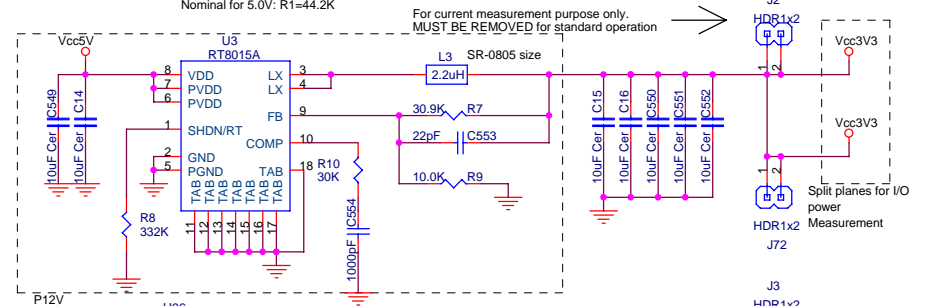
Sequencing:




Power sequencing: 3.3V-->1.8V-->1.0V

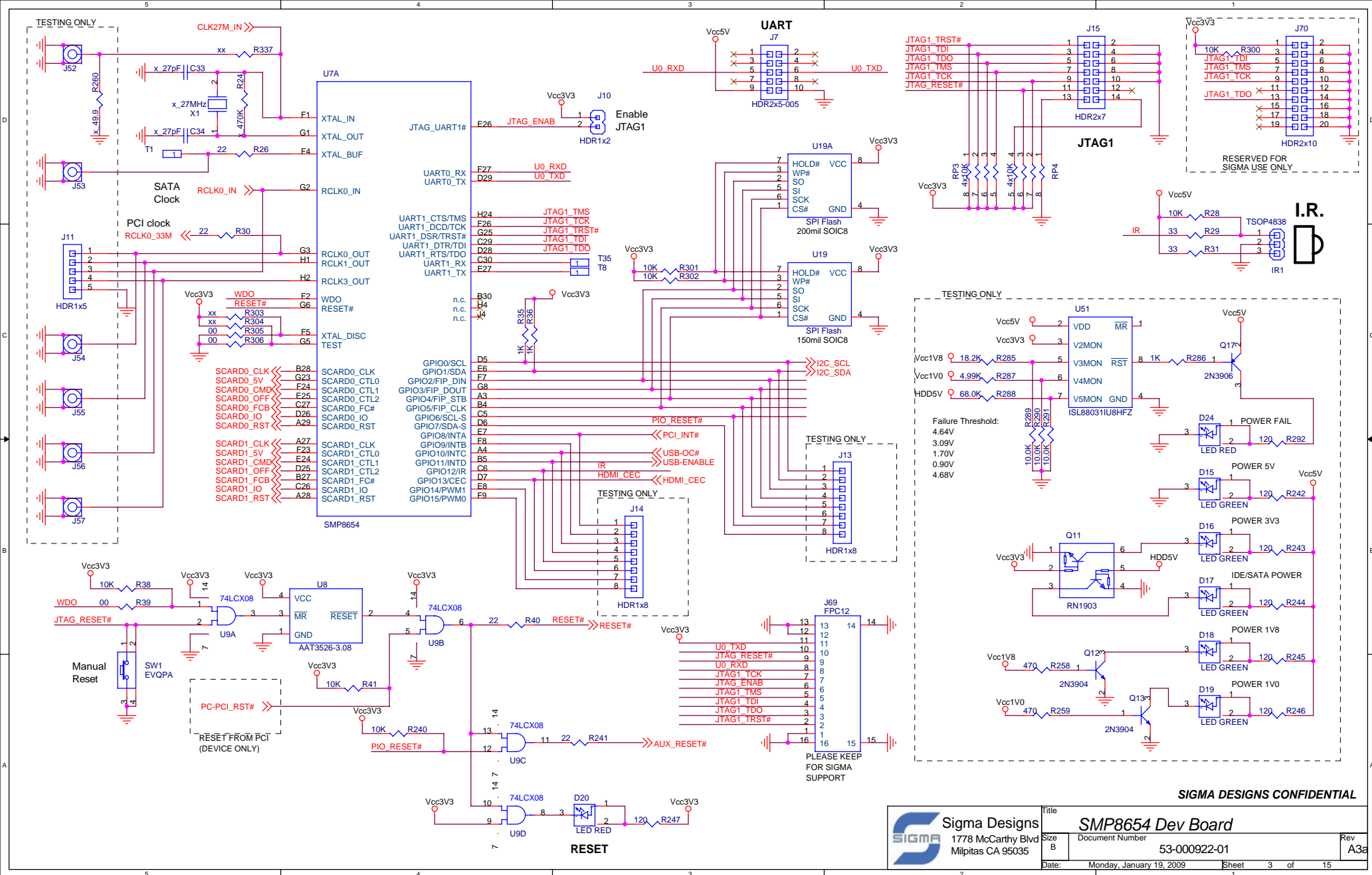


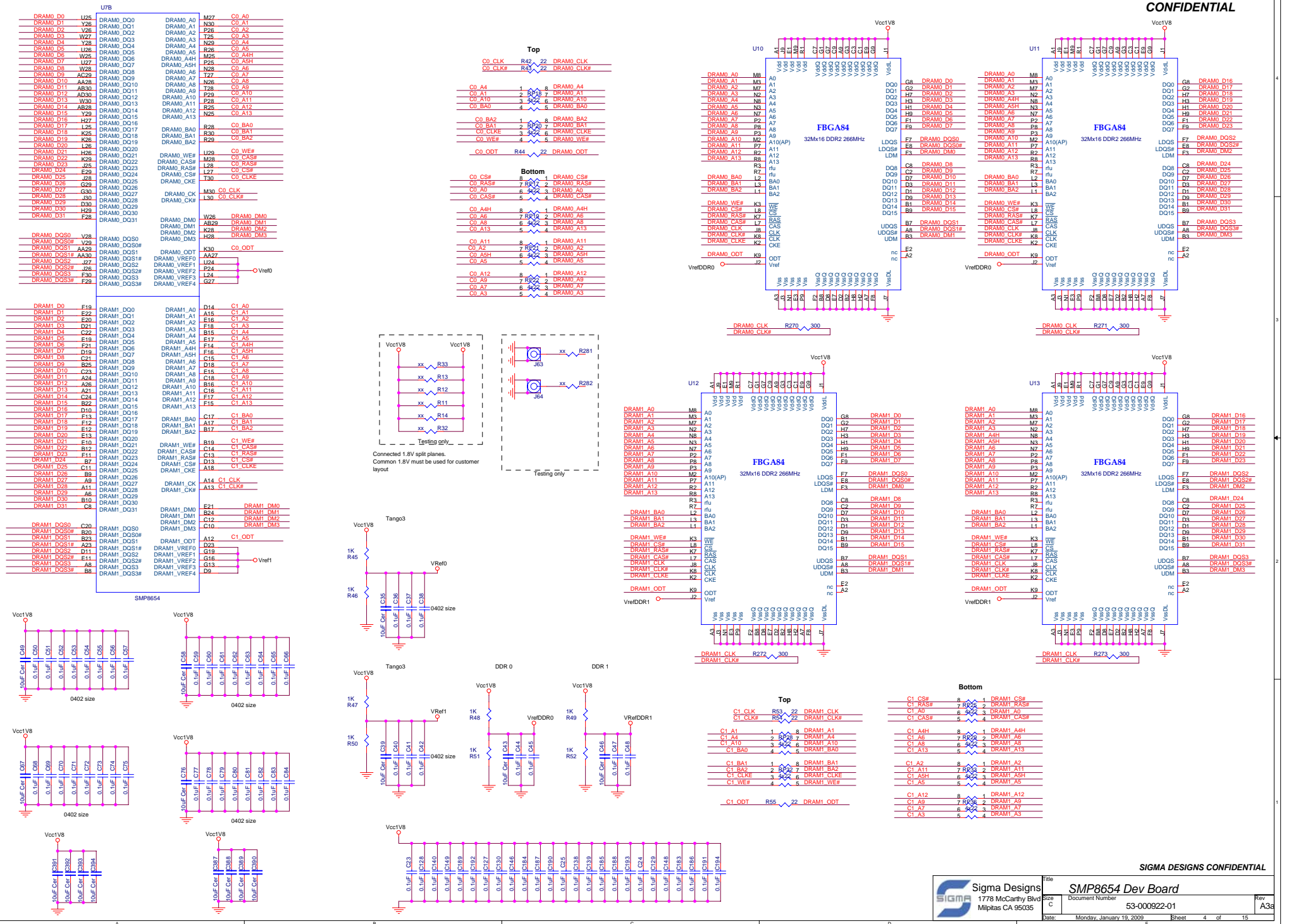
OUTPUT set to 5.3V to compensate  
loss over D1  
Nominal for 5.0V: R1=44.2K

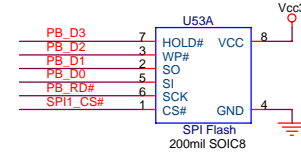
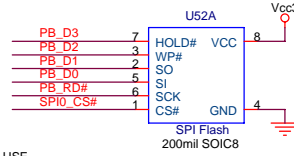
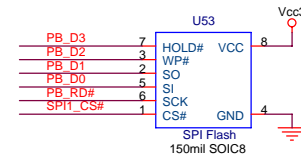
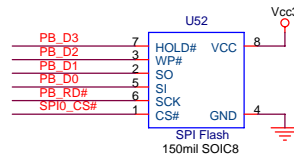
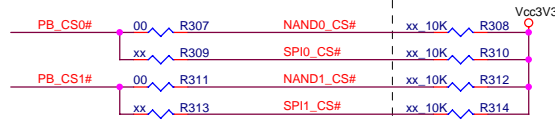
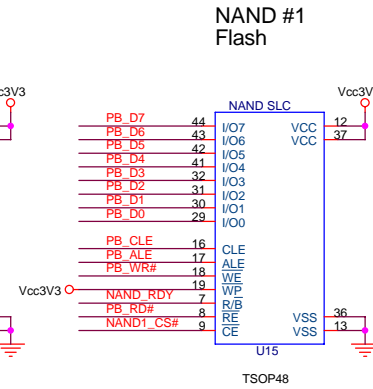
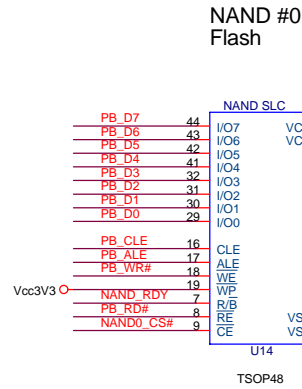
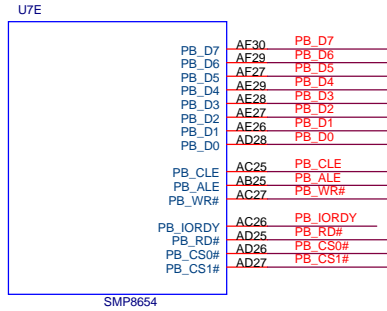


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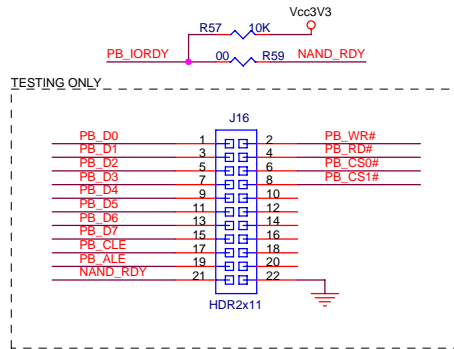
	Sigma Designs		Title		SMP8654 Dev Board	
	1778 McCarthy Blvd Milpitas CA 95035		Size B	Document Number		Rev A3a
			53-000922-01			
Date: Monday, January 19, 2009			Sheet 2 of 15			







RESERVED FOR FUTURE USE



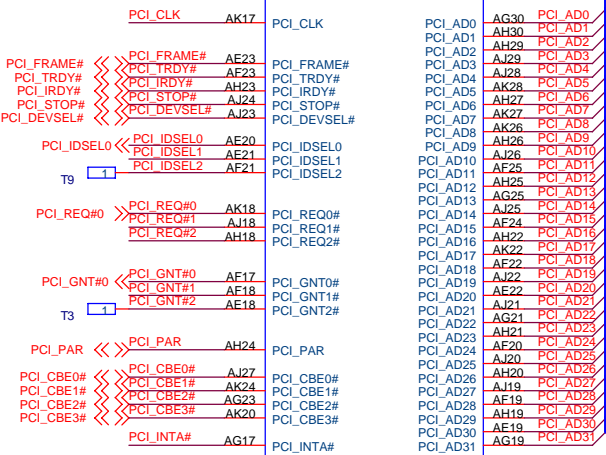
SIGMA DESIGNS CONFIDENTIAL



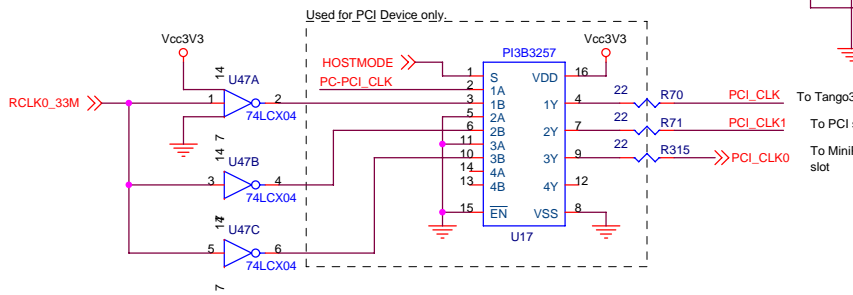
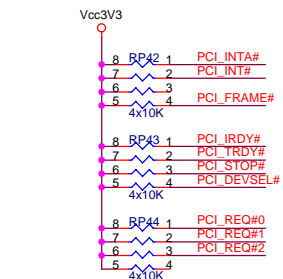
Title		SMP8654 Dev Board	
Size	Document Number	53-000922-01	Rev
B			A3a
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# PCI HOST/Device CONTROLLER

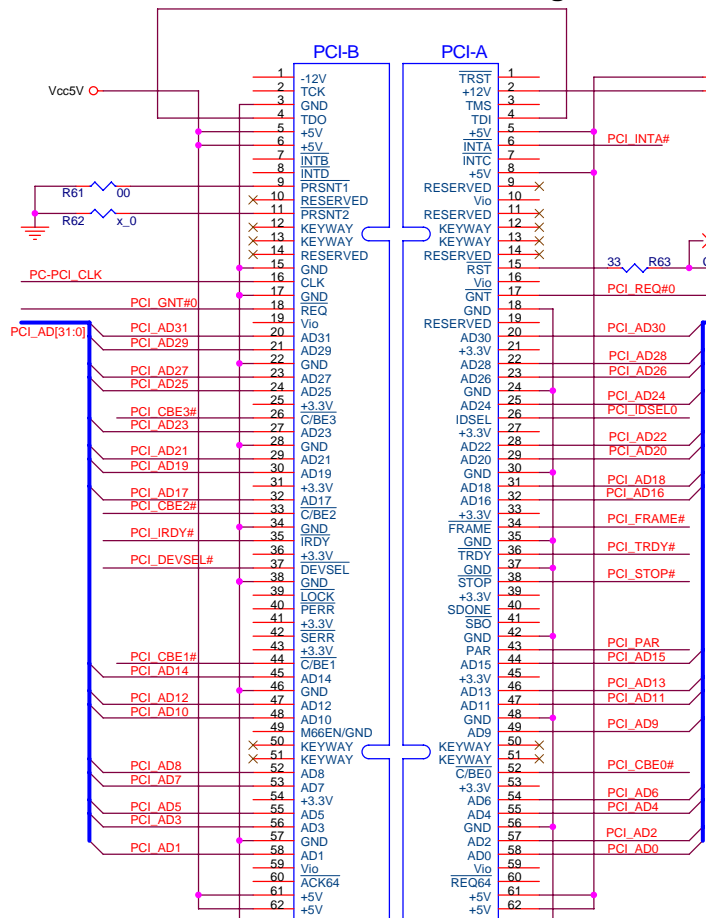
U7C



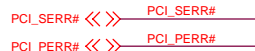
SMP8654



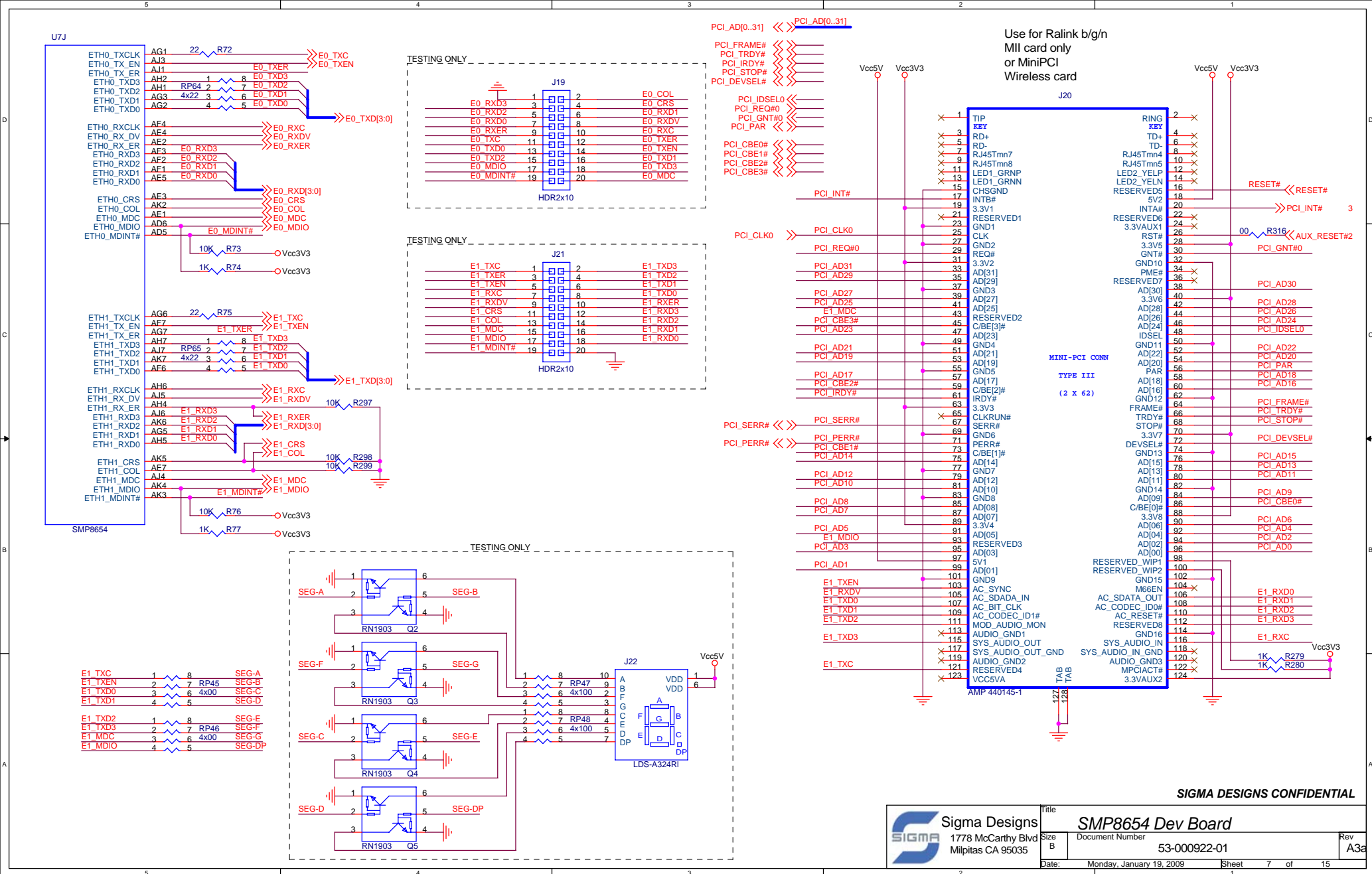
## 32bit 5V/3V3 PCI board edge

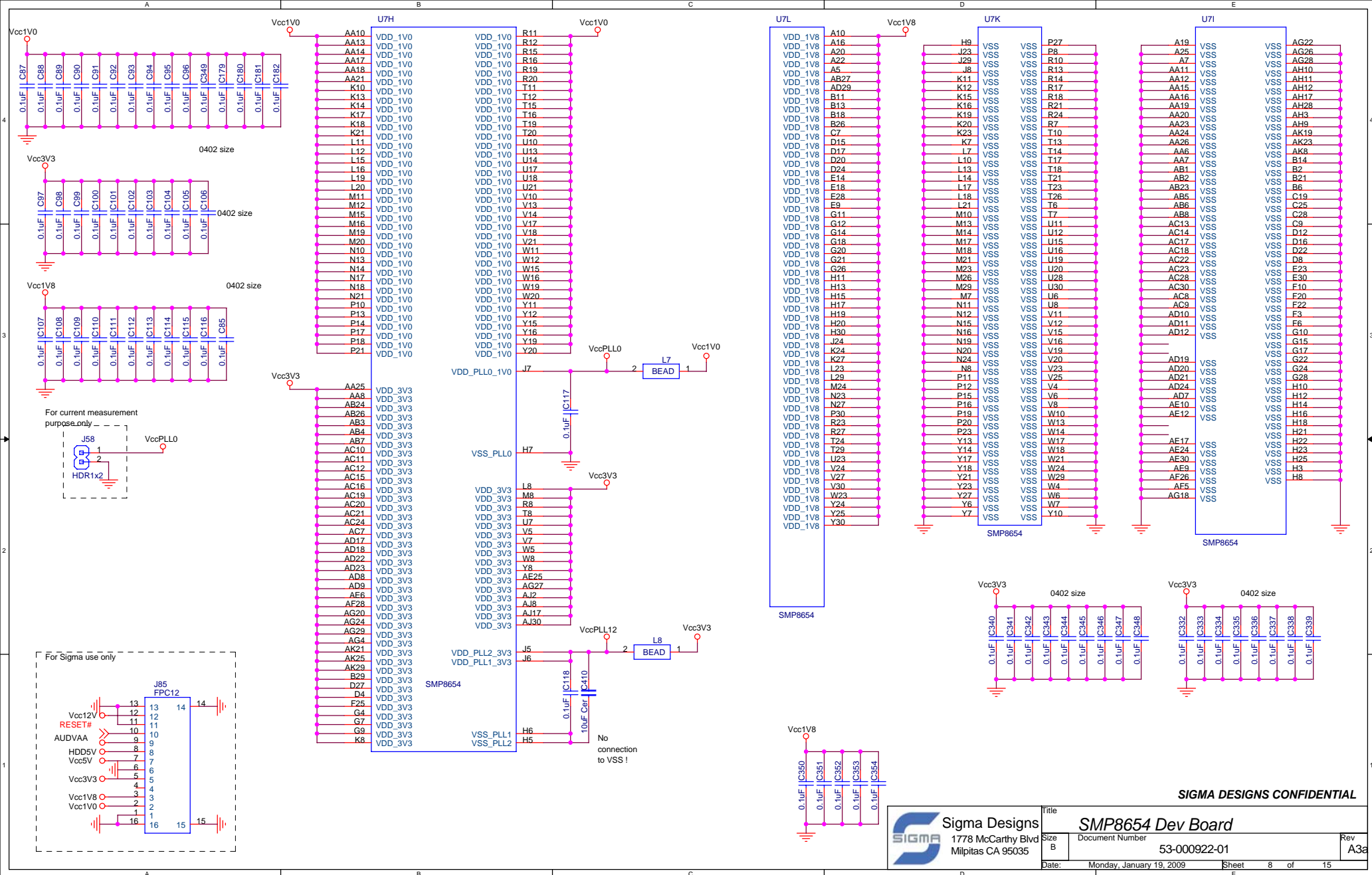


## PCI slot (Host)

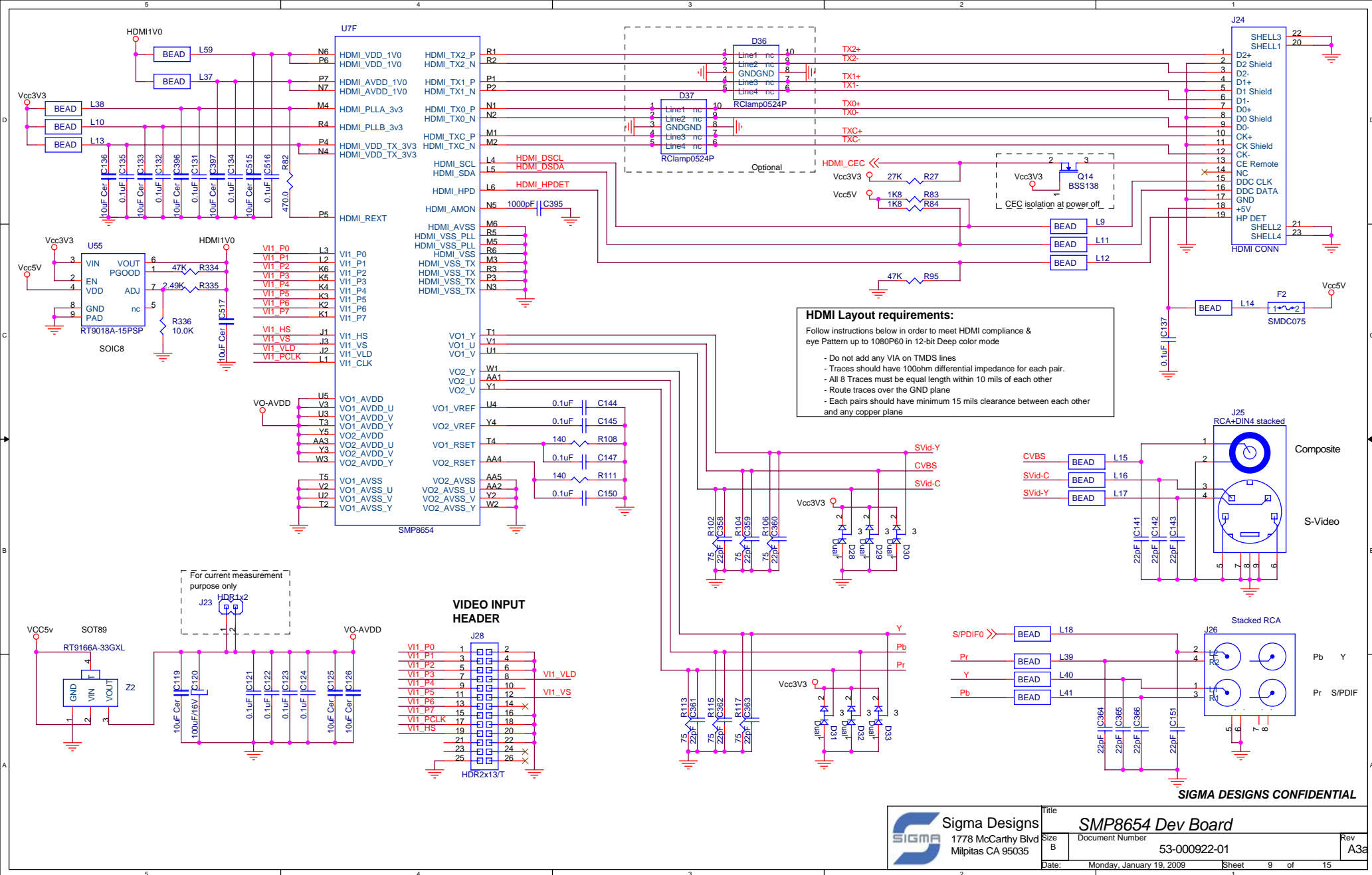






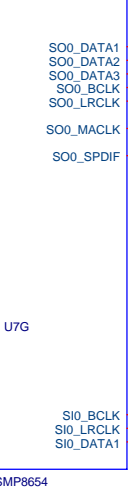




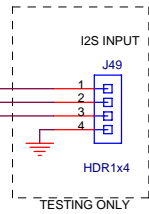


SPI\_D0 D2 TS0\_IN\_D0  
 SPI\_D1 D1 TS0\_IN\_D1  
 SPI\_D2 C1 TS0\_IN\_D2  
 SPI\_D3 B1 TS0\_IN\_D3  
 SPI\_D4 E5 TS0\_IN\_D4  
 SPI\_D5 A2 TS0\_IN\_D5  
 SPI\_D6 B3 TS0\_IN\_D6  
 SPI\_D7 C4 TS0\_IN\_D7  
 SPI\_CLK C3 TS0\_CLK  
 SPI\_SYNC C2 TS0\_IN\_SYNC  
 SPI\_VALID D3 TS0\_IN\_VLD

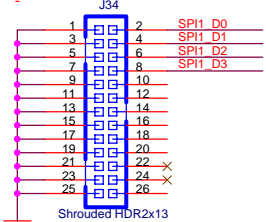
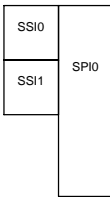
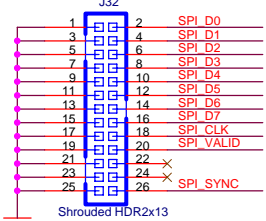
SPI1\_D0 E4 TS1\_IN\_DATA  
 SPI1\_D1 E3 TS1\_IN\_CLK  
 SPI1\_D2 E2 TS1\_IN\_SYNC  
 SPI1\_D3 E1 TS1\_IN\_VLD



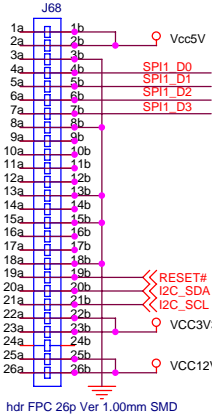
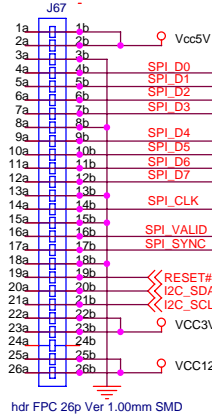
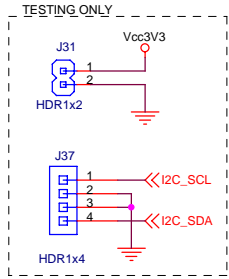
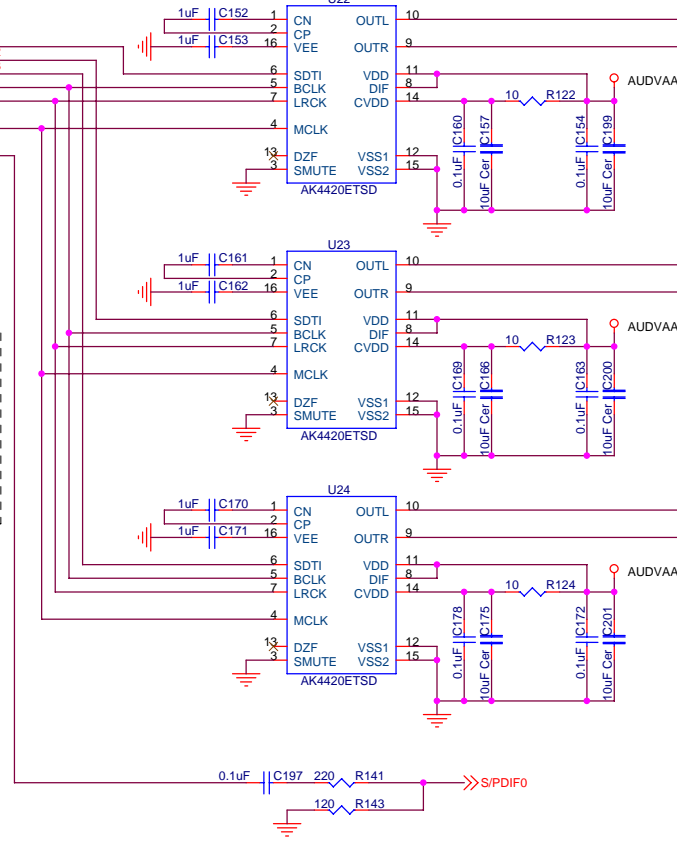
U7G  
 SMP8654



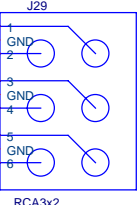
### SPI/SSI INPUT HEADERS



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### 5.1-CH AUDIO

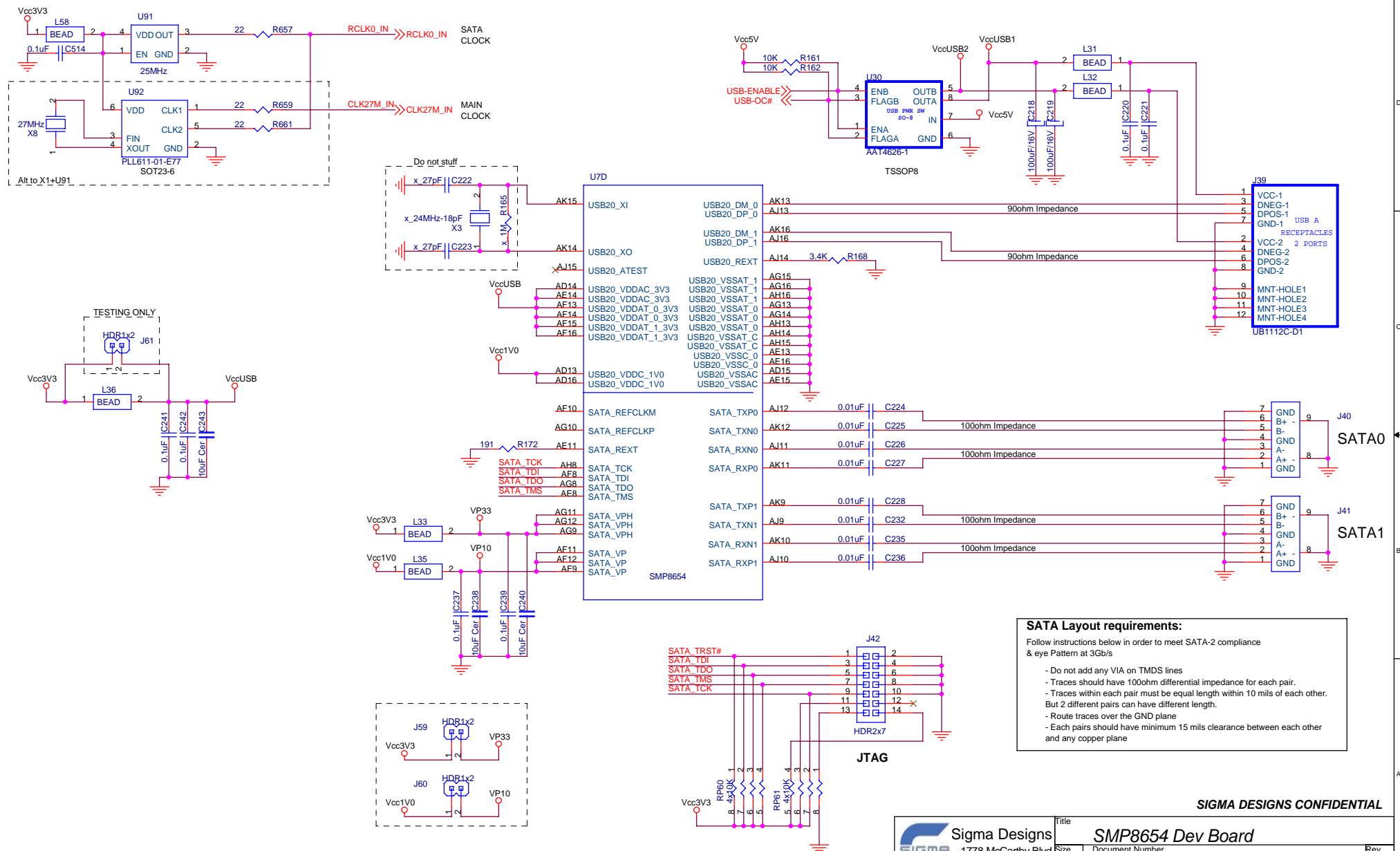


LINE OUT  
 2V RMS

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**Sigma Designs**  
 1778 McCarthy Blvd  
 Milpitas CA 95035

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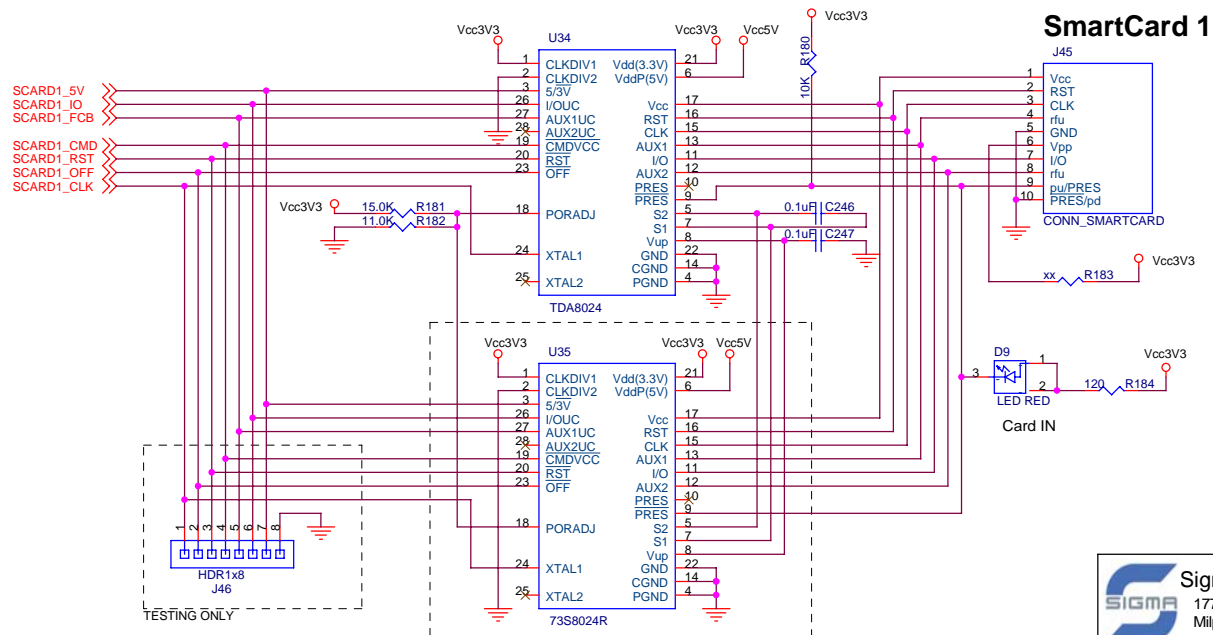
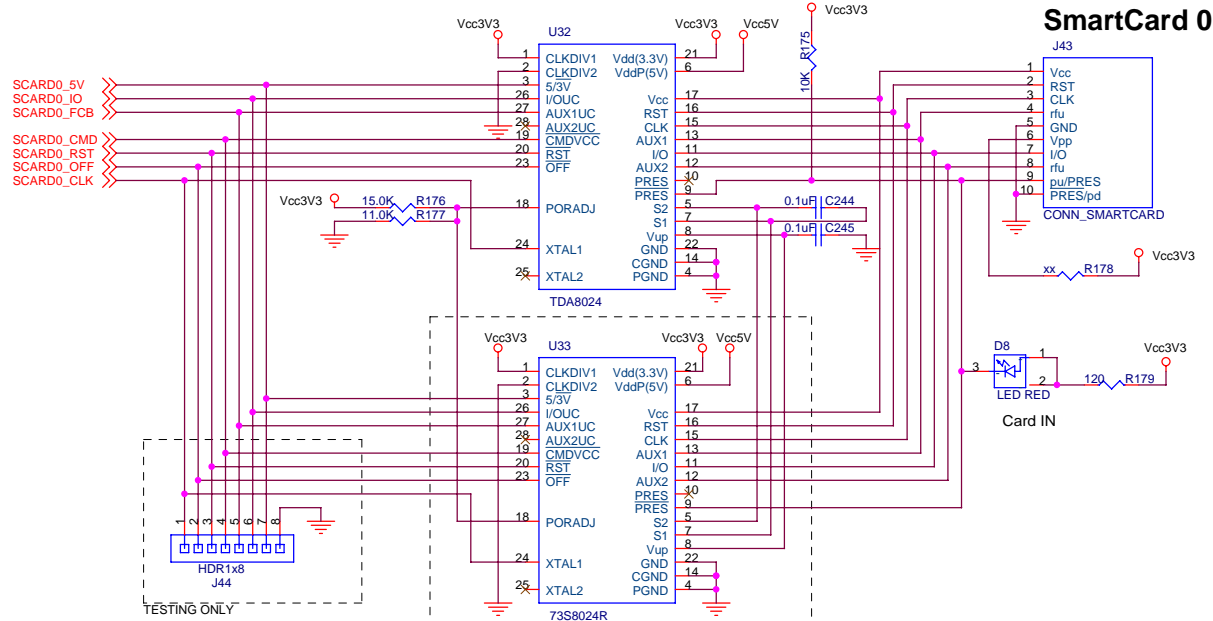
**SATA Layout requirements:**

Follow instructions below in order to meet SATA-2 compliance & eye Pattern at 3Gb/s

- Do not add any VIA on TMDS lines
- Traces should have 100ohm differential impedance for each pair.
- Traces within each pair must be equal length within 10 mils of each other. But 2 different pairs can have different length.
- Route traces over the GND plane
- Each pairs should have minimum 15 mils clearance between each other and any copper plane







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## Boards for SMP8654 Engineering Samples

### Changes from Rev E1 --> Rev E2:

- Correct HDMI 1.3 video input pins mapping
- Fix IDE & PCI reset (AUX\_RESET# duplicate)
- Correct connection to Marvell PHY

### Changes from Rev E2 --> Rev E3:

- Remove DDR series resistors
- Improve PLL decoupling (Cap location)
- Change Gigabit PHY to RTL8211BG
- Change Audio DAC to AK4420
- Remove 2.5V power (unused)
- Add SMA conn on clocks
- Isolate DDR I/O for power measure
- Remove video output buffers

### Changes from Rev E3 --> Rev E4:

- Fix SMP8654 pinout on SPI-0 input
- Minor Updates on RTL8211BG page (EMI)
- Re-add series resistors on DDR address lines only
- Add termination on DDR clocks
- Change core & DDR power supply to 2A
- Add additional 10uF caps to DDR
- Add connection to USB power pin AE13
- Add U49 Alternate SATA clock
- Add Ralink MII Wireless card support

## Boards for SMP8654 Production IC (Integrated HDMI)

### Changes from Rev E4 --> Rev A1:

- Update SMP8654 pinout related to HDMI section
- Remove SII9134 and SII9002 ICs, replace with internal HDMI circuit

### Changes from Rev A1 --> Rev A1a:

- SMP8654 ballout UPDATE:
  - USB section
  - Del GND ball AD15, AD16, AE14, AE15
  - Del 3V3 ball AD13, AD14
- Added GND test points and SMA Conn.

### Changes from Rev A1a --> Rev A1b:

- Swapp U & V connection on Video DAC outputs
- Add optional power sequencing
- Change AAT1153 back to AAT1112, update current data
- Short power jumpers
- Add RP64,65 accidentally deleted on A1a

### Changes from Rev A1b --> Rev A1c:

- Add Connector for ATSC/DVB-T tuner board
- Fix MiniPCI MII pinout

### Changes from Rev A1c --> Rev A2:

- Correct symbol n/c balls J4,H4,B30
- Add VSS ball L7
- Replace Gigabit PHY with 10/100 PHY
- Fix JTAG new pinout (TDI)
- Add SPI Flash (GPIO2..5 and Flash Bus)
- Add support for Bist test (Sigma use only)
- Added decoupling on 1.8V
- Added ESD protection on video outputs (dig & analog)

### Changes from Rev A2 --> Rev A2a:

- Update PLL 1&2 power connection

### Changes from Rev A2a --> Rev A2b:

- Update HDMI power & layout
- Change HDMI RSET connection
- Add 200mils SOIC footprint for SPI flash
- Add 25MHz to RCLK0 for SATA Clock

### Changes from Rev A2b --> Rev A2c:

- Replace RJ45s with external Transf. with integrated unit

### Changes from Rev A2c --> Rev A3:

- Upgrade core power to 3A
- Upgrade DDR power to 3A
- Upgrade HDMI1V0 regulator
- Update 5V and HDD5V regulator
- Update AUDVAA regulator
- Update 3.3V Video DACs regulators
- Remove 120MHz clock UNUSED
- Correct 27MHz input to XTAL\_IN

### Changes from Rev A3 --> Rev A3a:

- Change 3.3V source from 12V (alternate)

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