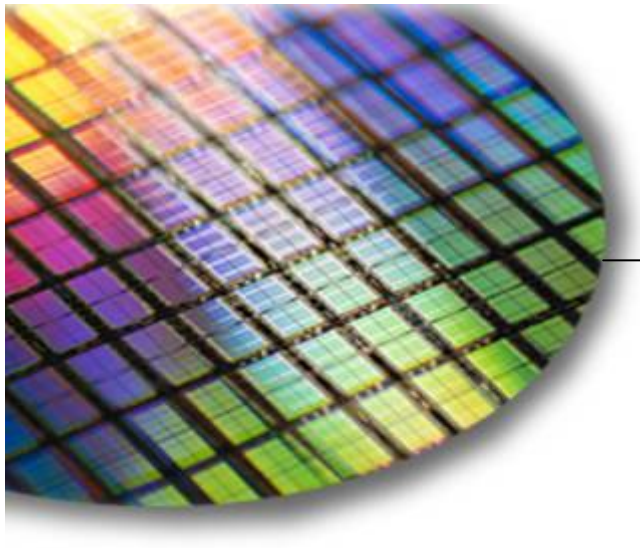


The World Leader in High Performance Signal Processing Solutions

ADV78XX
SDRAM memory evaluation

DVP Vid Rx

Advantiv
Advanced Television Solutions
by Analog Devices

ANALOG DEVICES

Memory details- Example

- **Density – 256 Mbits**
- **4M x 16Bit x 4Banks(16Mx16)**
- **Interface- SSTL_2**
- **Temperature rating 0 -70C**
- **Package – 66 pin TSOP2**
- **Lead-Free (RoHS compliant)**

Tests

- **Memory operation for standard condition:**
  - **3D Comb enabled**
  - **Frame TBC enabled**
- **Temperature evaluation**
- **Power supply voltage adjustment**
- **Continuous Reset**
- **Timing Parameter adjustment**
- **Different Board layouts**

ANALOG DEVICES

Memory operation for standard condition

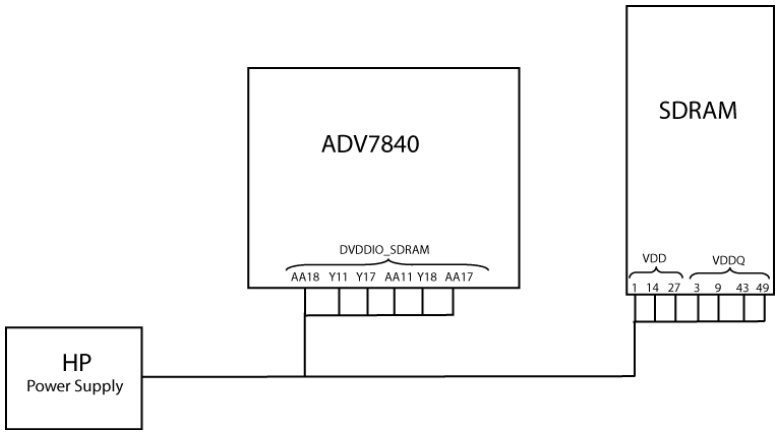
- **Memory was initially tested in normal conditions:**
  - **Nominal power supplies**
  - **25 degrees ambient temperature**
- **Both FrameTBC and 3D comb were enabled for all the testing**
- **The tests mainly involve visual inspection for correct operation on screen.**
- **A BIST test is also used to verify data from the external memory**
  - **BIST – Built in Self test.**
  - **A memory BIST sends data to the memory and checks that it is read back correctly. This fails if any of the data does not match.**

Temperature evaluation

- **Memory was evaluated for memory range of temperatures: 0 to 70 degrees**
- **Operation of the memory was observed for full range.**
- **A BIST test was also used to test for error in the transferred data.**

Power supply voltage adjustment

- **Memory was evaluated for a range of power supply voltages VDD_3.3V – power supply connected to:**
  - **DVDDIO SDRAM was varied from 2.30V to 2.70V**
  - **VDD supply was also varied from 1.70V to 1.90V**



Continuous Reset

- **This test is carried out to ensure correct booth up/ reset of the memory controller.**
- **The ADV78xx issues a reset to the memory controller and the picture is observed. Both Frame TBC and 3D comb are enabled.**
- **This test is carried out 200+ times**

Timing Parameter adjustment & board layout

- To test for any sensitivity of the memory interface to trace lengths etc. Timing adjustments are made to check robustness
- UDQS,LDQS are adjusted relative to data.
- CLK and CLK\ are also adjusted.

- Along with this testing the memory was tested on anther generation board. This uses the same memory interface technology, however it is a different board layout.

Conclusion

- **Tests completed**
  - **Supply variation- PASS**
  - **Temperature testing -PASS**
  - **Continuously reset -PASS**
  - **Timing parameter adjustment- PASS**
  - **2 difference board layouts - PASS**
- **No issues were seen in any of the testing.**
- **For all the testing the memory operated as expected.**