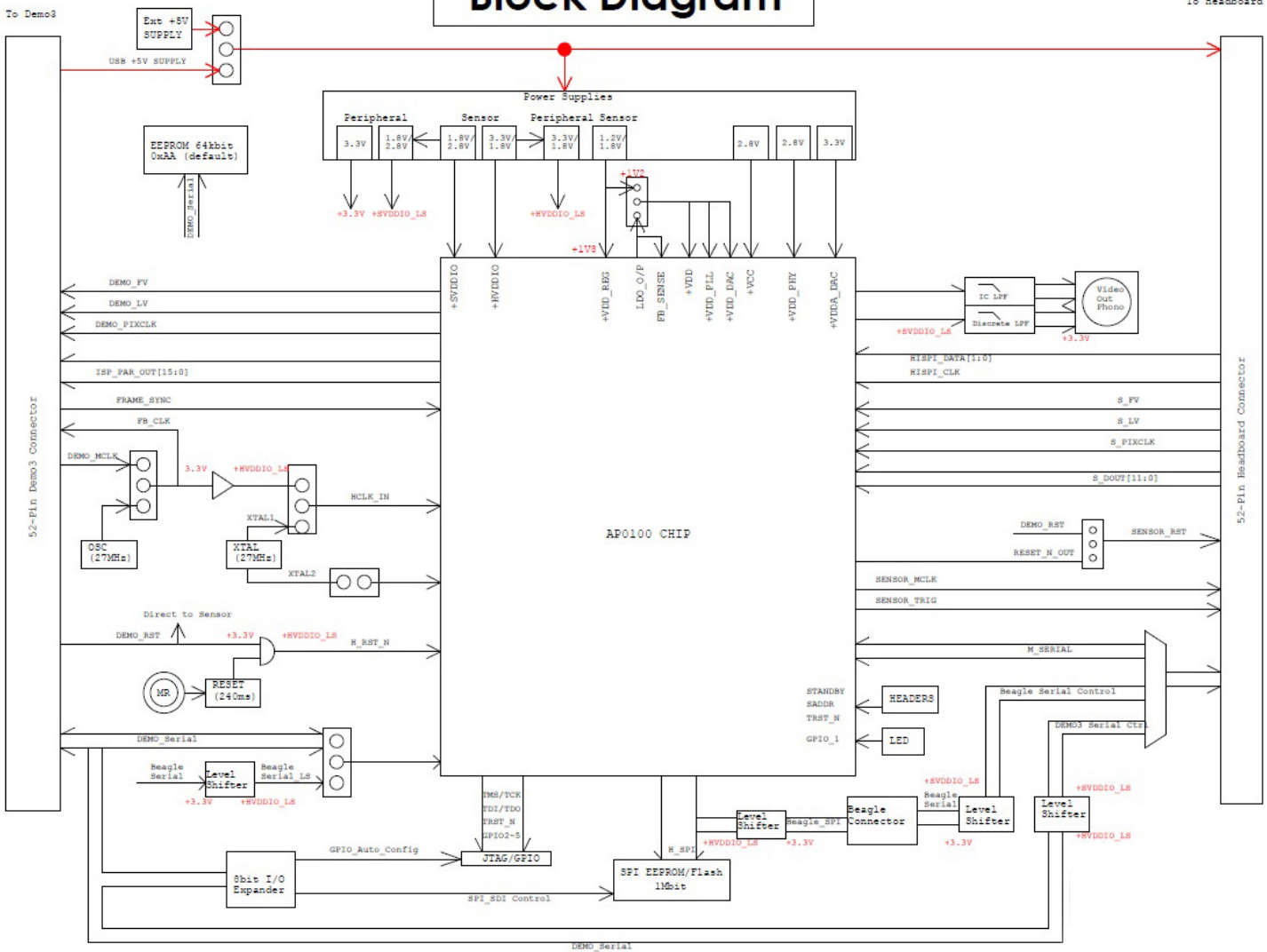
ON Semiconductor®

Schematic for the AP0100AT2L00XUGAH3-GEVB Evaluation Board

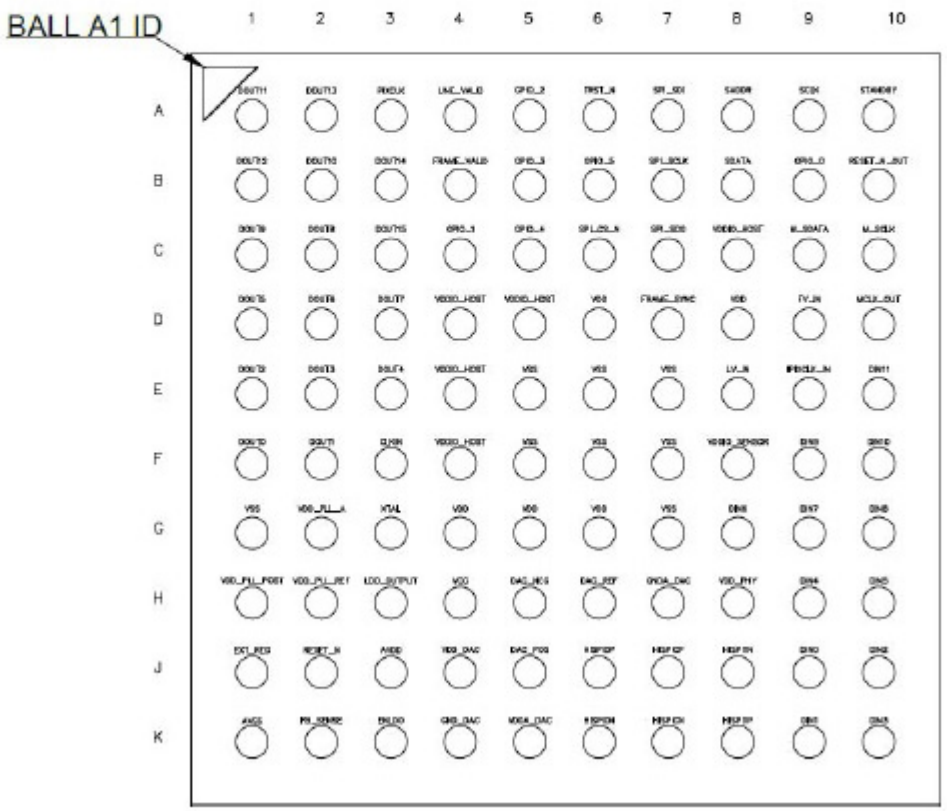
AP0100 100BGA HB DEMO3 Card

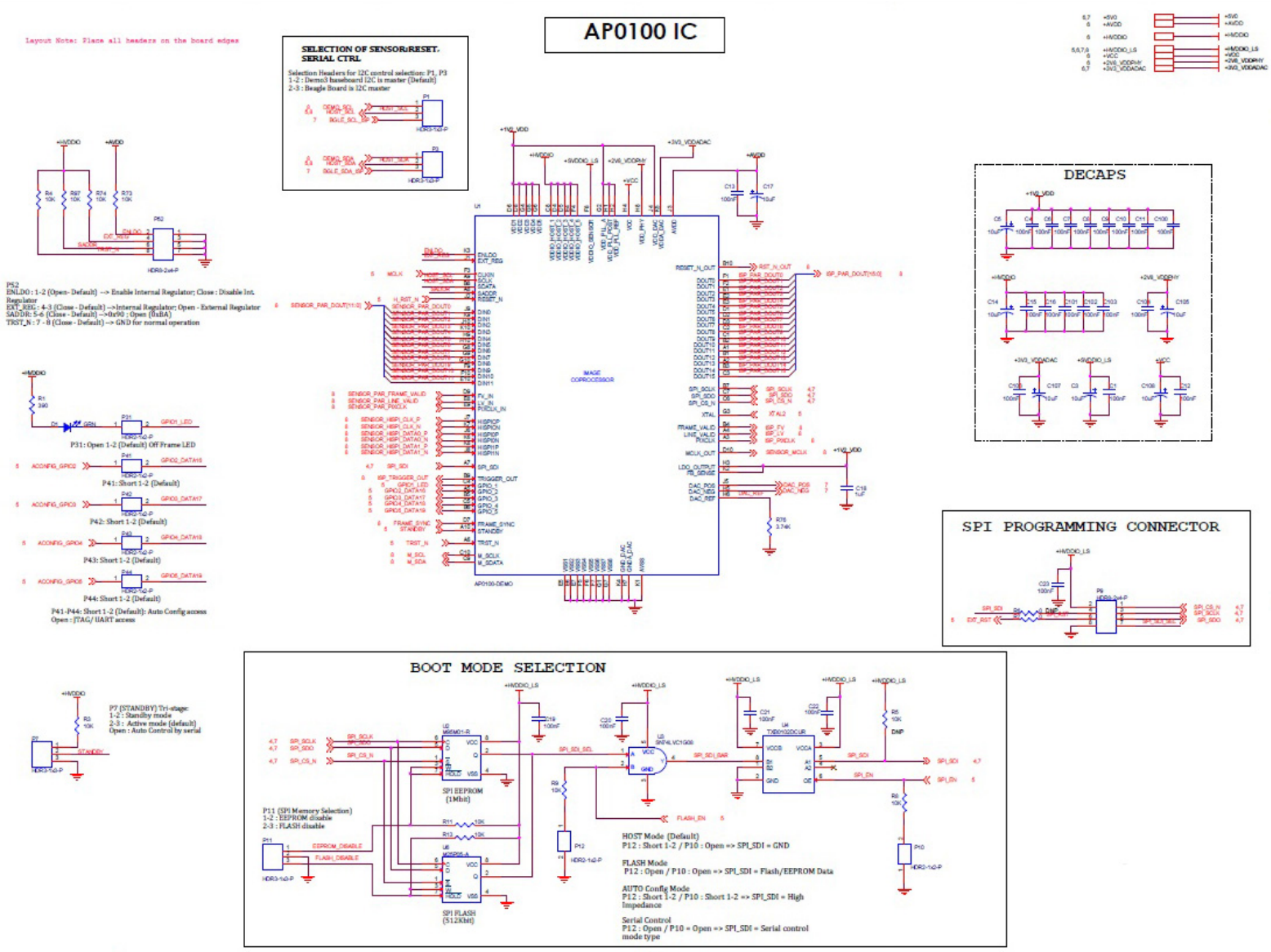
Rev	Who	Date	Description
Rev 0.0	aralex	05/29/2014	Base Schematic for Custom Design
Rev 0.1	aralex	06/23/2014	implemented review comments after online review changed the reference designators in this schematic to align with those of the AP0101 board for ease of layout
	aralex	08/12/2014	deleted P4, P39 headers in order to use 1.2V internal regulator of ISP schematic cleanup
Rev 0.2	aralex	08/21/2014 08/24/2014	changed R44, R45, R46, R47, R53, R54, R60, R61, R62, R63, R69, R70 pkg from 0603 to 0402 Added R98, R67, R95, TP18, TP19
Rev 0.3	aralex	08/25/2014	Deleted R92 being redundant. modified connectivity of R91
Rev 0.4	aralex	08/26/2014	Changed TP13-15, TP18-19 from thru hole to SMT Deleted headers P39, P41, P5 and P8 to consolidate the 4 nets to one new 4 X 2 header, P52

Block Diagram



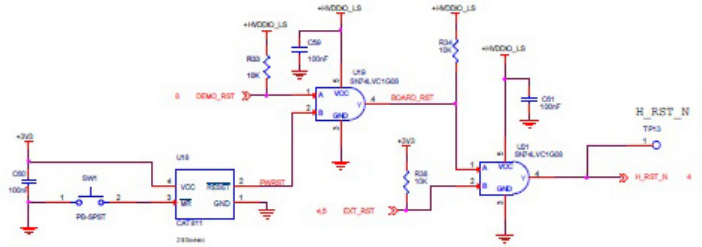
PINOUT



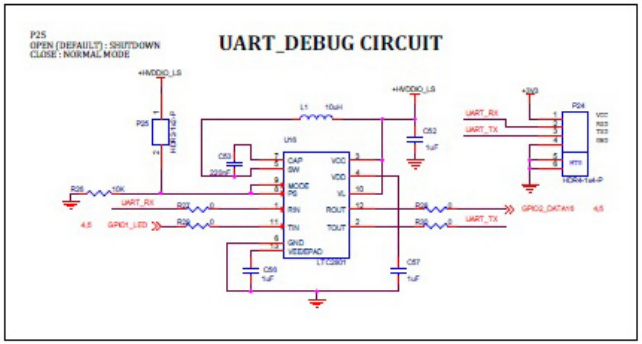

AP0100 IC
Layout Note: Place all headers on the board edges
SELECTION OF SENSOR/RESET, SERIAL CTRL
DECAPS
SPI PROGRAMMING CONNECTOR
BOOT MODE SELECTION
P31: Open 1-2 (Default) Off Frame LED
P41: Short 1-2 (Default)
P42: Short 1-2 (Default)
P43: Short 1-2 (Default)
P44: Short 1-2 (Default)
P41-P44: Short 1-2 (Default): Auto Config access
Open : JTAG/ UART access
P7 (STANDBY) Tri-stage:
1-2 : Standby mode
2-3 : Active mode (default)
Open : Auto Control by serial
P11 (SPI Memory Selection)
1-2 : EEPROM disable
2-3 : FLASH disable
SPI EEPROM (1Mbit)
SPI FLASH (512Kbit)
HOST Mode (Default)
P12 : Short 1-2 / P10 : Open => SPI_SDI = GND
FLASH Mode
P12 : Open / P10 : Open => SPI_SDI = Flash/EEPROM Data
AUTO Config Mode
P12 : Short 1-2 / P10 : Short 1-2 => SPI_SDI = High Impedance
Serial Control
P12 : Open / P10 = Open => SPI_SDI = Serial control mode type

Clock_Reset_UART_Auto config

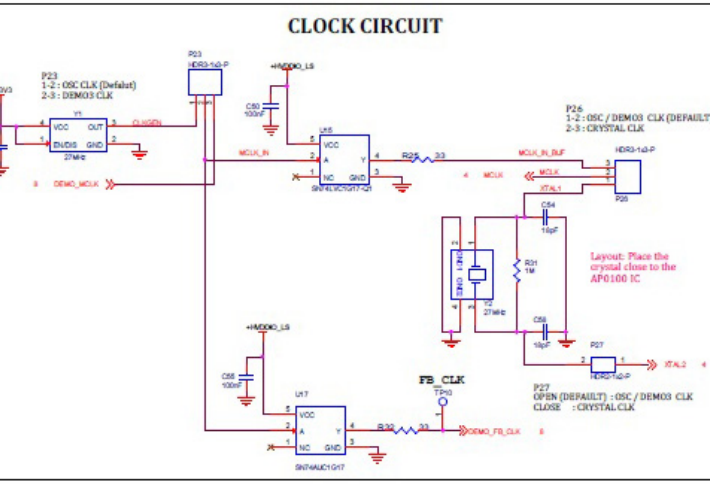
RESET CIRCUIT



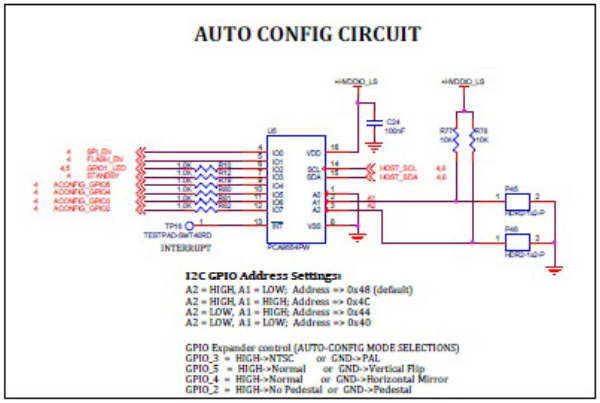
UART_DEBUG CIRCUIT

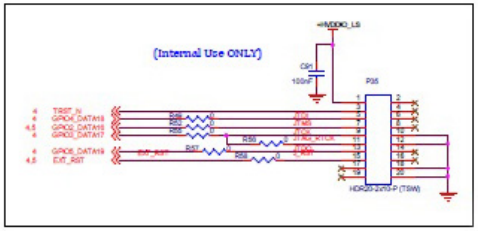


CLOCK CIRCUIT



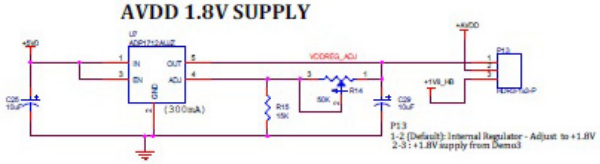
AUTO CONFIG CIRCUIT



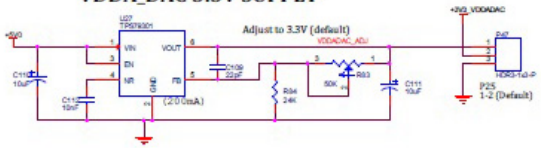


Power

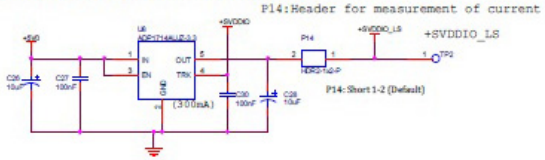
AVDD 1.8V SUPPLY



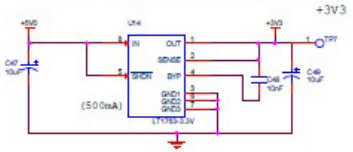
VDDA_DAC 3.3V SUPPLY



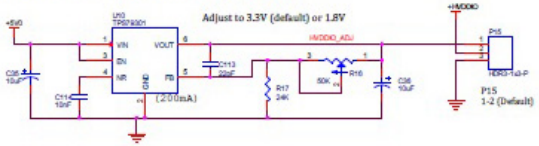
SVDDIO 2.8V or 1.8V SUPPLY



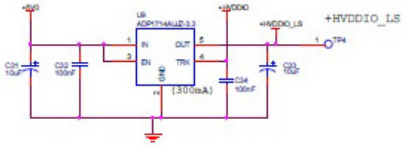
PERIPHERAL 3.3V SUPPLY



HVDDIO 3.3V or 2.5V SUPPLY



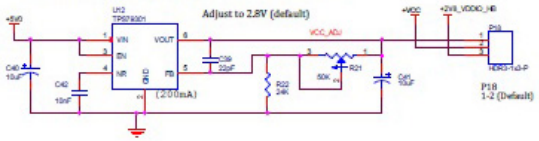
PERIPHERAL HVDDIO_LS SUPPLY



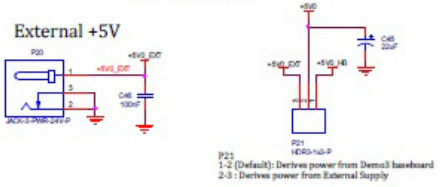
Layout: Mount LED on bottom side of PCB

5V LED

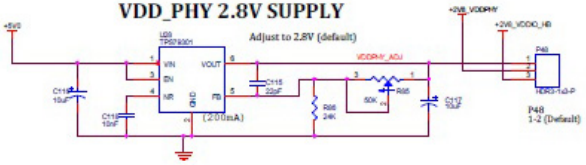
VCC (VDDIO_OTPM) 2.8V SUPPLY



+5V SUPPLY

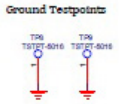


VDD_PHY 2.8V SUPPLY

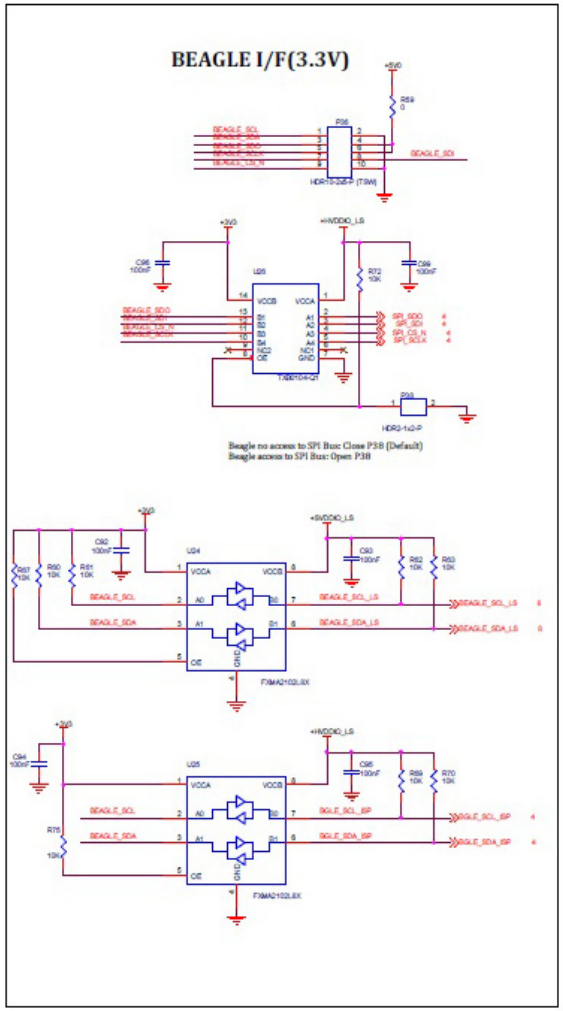


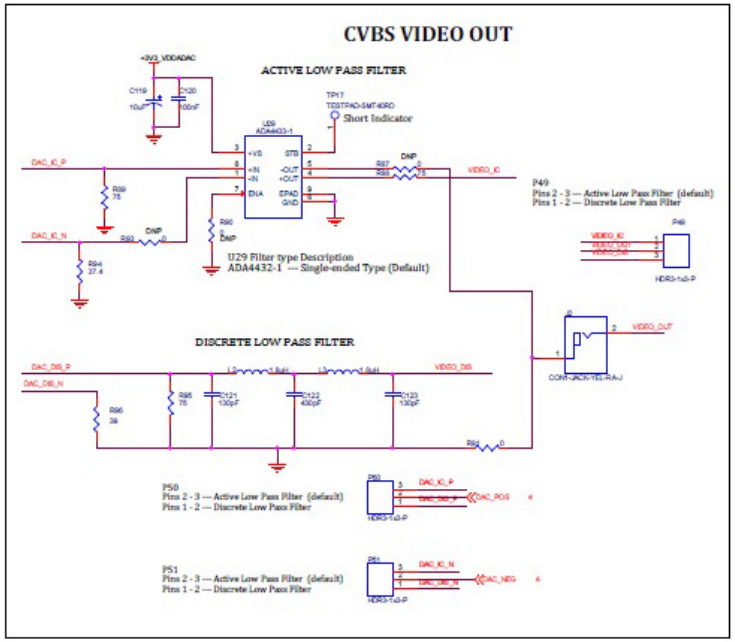
Mounting Holes

Ground Testpoints



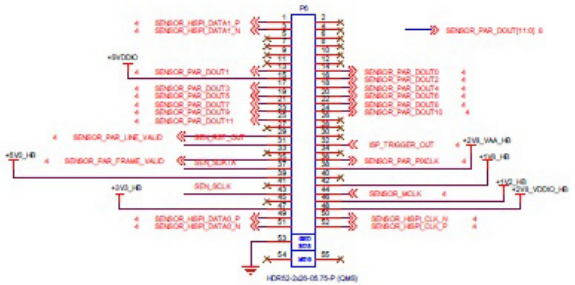
BEAGLE Interface / Video Out



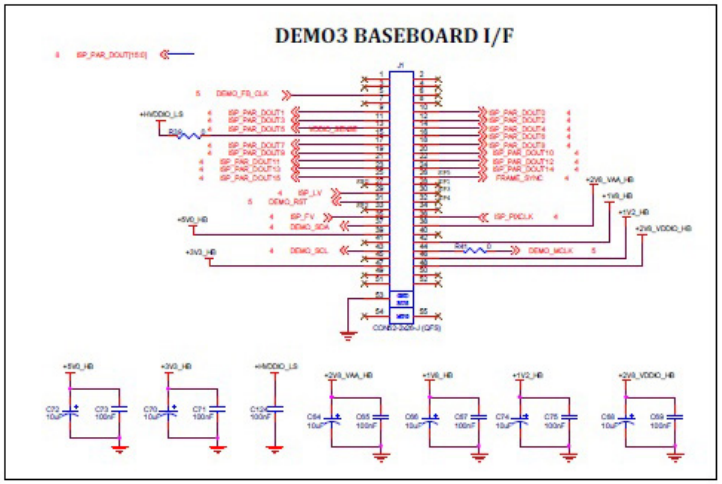


External Interface

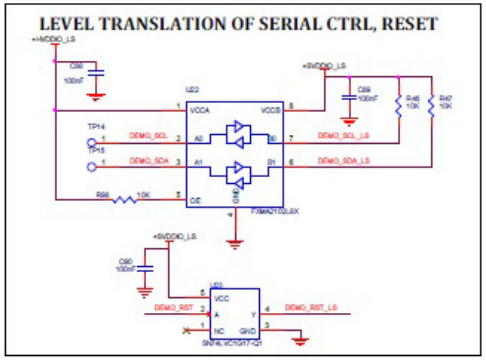
DEMO SENSOR HB CONNECTOR



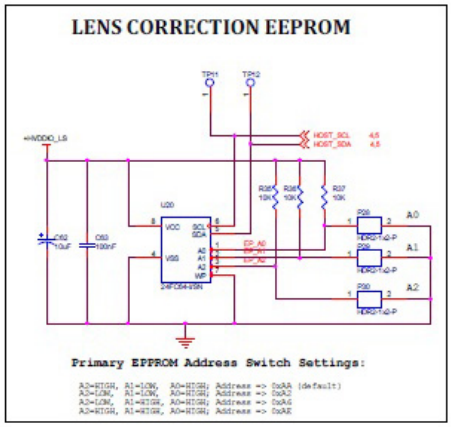
DEMO3 BASEBOARD I/F



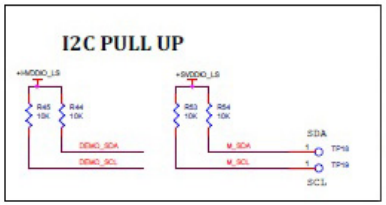
LEVEL TRANSLATION OF SERIAL CTRL, RESET



LENS CORRECTION EEPROM



I2C PULL UP



SELECTION OF SENSOR:RESET, SERIAL CTRL