# AR0140CS2C00SUEAH3-GEVB

# AR0140CS Evaluation Board User's Manual

ON Semiconductor®

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EVAL BOARD USER'S MANUAL

### Evaluation Board Overview

The evaluation boards are designed to demonstrate the features of ON Semiconductor's image sensors products. This headboard is intended to plug directly into the Demo 3 system. Test points and jumpers on the board provide access to the clock, I/Os, and other miscellaneous signals.

### Features

- Clock Input
  - Default – 27 MHz Crystal Oscillator
  - Optional Demo 3 Controlled MClk
- Two Wire Serial Interface
  - Selectable Base Address
- Parallel Interface
- HiSPi (High Speed Serial Pixel) Interface
- MIPI Interface
- ROHS Compliant

**Figure 1. AR0140CS Evaluation Board**

### Block Diagram

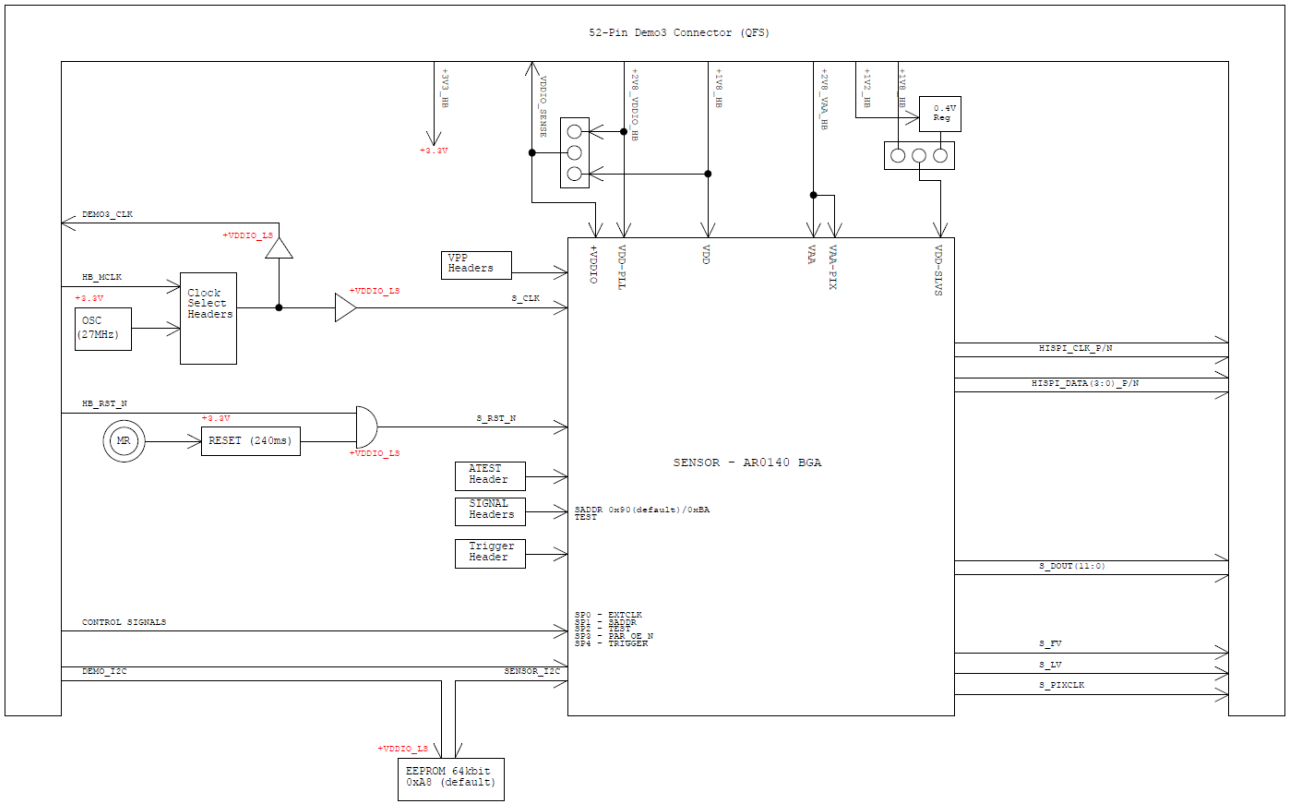


**Figure 2. Block Diagram of AR0140CS2C00XUEAH3−GEVB**

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*Top View*

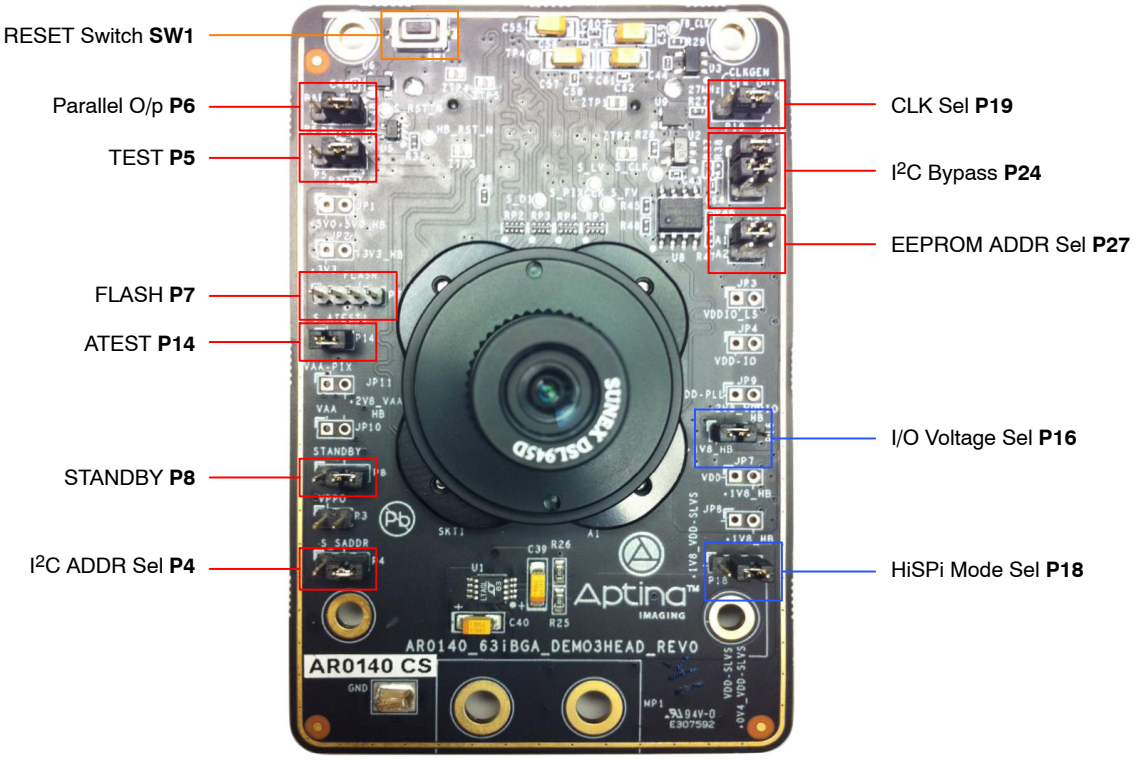


**Figure 3. Top View of Evaluation Board − Default Jumpers**

*Bottom View*

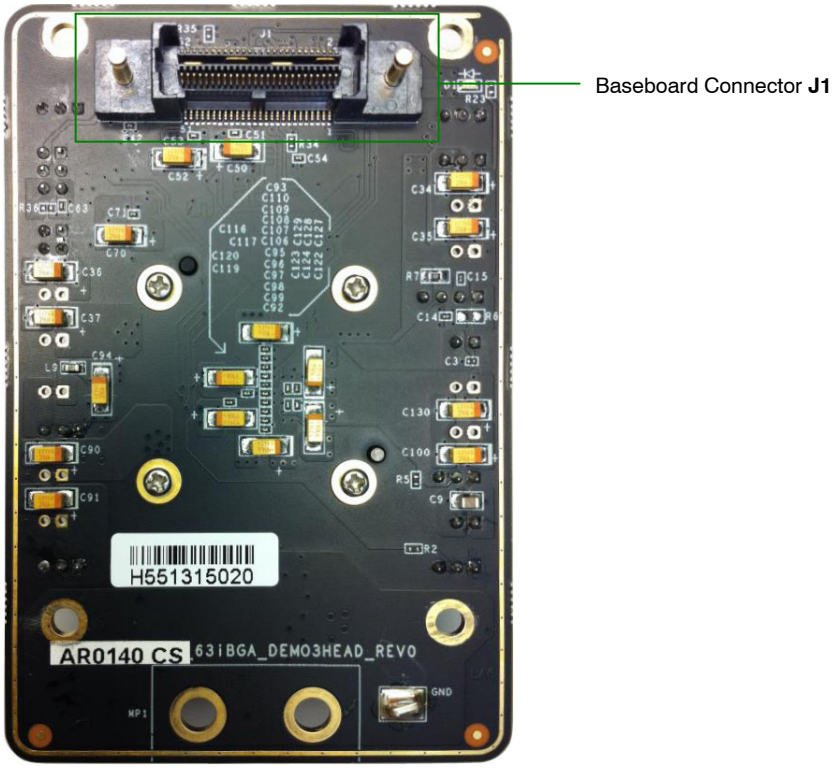


**Figure 4. Bottom View of Evaluation Board − Connector**

*Jumper Pin Location*

The jumpers on headboards start with Pin 1 on the leftmost side of the pin. Grouped jumpers increase in pin size with each jumper added.

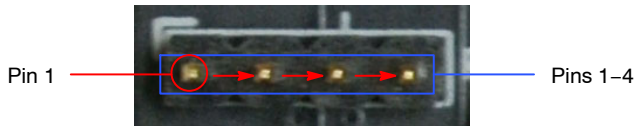


**Figure 5. Pin Locations for a Single Jumper. Pin 1 is Located at the Leftmost Side and Increases as it Moves to the Right**

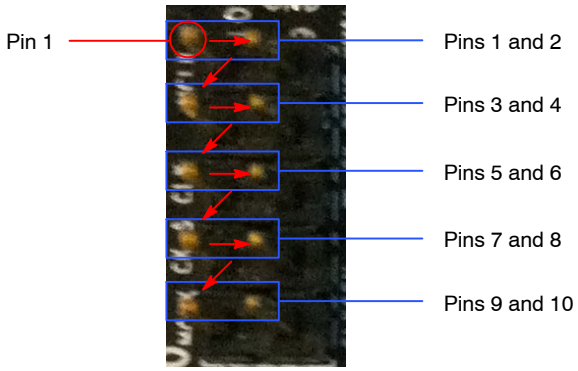


**Figure 6. Pin Locations and Assignments of Grouped Jumpers. Pin 1 is Located at the Top-Left Corner and Increases in a Zigzag Fashion Shown in the Picture**

*Jumper/Header Functions & Default Positions*

**Table 1. JUMPERS AND HEADERS**

| Jumper/Header No. | Jumper/Header Name | Pins | Description |
|---|---|---|---|
| P3 | VPP | Open | OTPM Programming Voltage Not Supplied |
| P4 | SADDR | 2−3 (Default) | $I^2C$ Address Set to 0x20 |
| | | 1−2 | $I^2C$ Address Set to 0x30 |
| P5 | Mode | 2−3 (Default) | Set to Normal Mode |
| | | Open | Set to Test Mode |
| P6 | OE_N | 2−3 (Default) | Parallel Output Enabled |
| | | Open | Parallel Output Disabled; HiSPi Output Enabled |
| P7 | FLASH | 1 | +5V0 |
| | | 2 | GND |
| | | 3 | FLASH |
| | | 4 | +3V3 |
| P8 | STANDBY | 2−3 (Default) | Normal Mode |
| | | 1−2 | Standby Mode |
| P14 | Analog Test | 1−2 (Default) | ATEST −> GND |
| P16 | VDD_IO | 1−2 (Default) | 1.8 V Operation of Sensor |
| | | 2−3 | 2.8 V Operation of Sensor |

**Table 1. JUMPERS AND HEADERS** (continued)

| Jumper/Header No. | Jumper/Header Name | Pins | Description |
|---|---|---|---|
| P18 | HiSPi Mode | 1−2 (Default) | SLVS Mode |
| | | 2−3 | Hi-VCM Mode |
| P19 | Master Clock | 1−2 (Default) | On-Board Oscillator (27 MHz) |
| | | 2−3 | AR0140CS Evaluation Board MCLK |
| P24 | $I^2C$ | 1−2 & 3−4 (Default) | Demo 3 SCL & SDA Connected to Sensor SCL & SDA Respectively |
| P27 | EEPROM Addr. Sel | 3−4 Open & 1−2 Closed (Default) | EEPROM Address Set to 0xA8 |
| | | 3−4 Open & 1−2 Closed | EEPROM Address Set to 0xAC |
| | | 3−4 Open & 1−2 Closed | EEPROM Address Set to 0xA4 |
| | | 3−4 Open & 1−2 Closed | EEPROM Address Set to 0xA0 |
| P28 | TRIGGER | 1−2 | Trigger Input Enabled |
| | | Open (Default) | Connect Generator Between Pin 1 and GND |
| SW1 | RESET | N/A | When Pushed, 240 ms Reset Signal will be Sent to AR0140CS |

### Interfacing to ON Semiconductor Demo 3 Baseboard

The ON Semiconductor Demo 3 baseboard has a similar 52-pin connector which mates with J1 of the headboard. The four mounting holes secure the baseboard and the headboard with spacers and screws.

*Shorted Jumper for Power Measurement*

Different supplies to the evaluation board are provided by trace shorted jumper, for any voltage and power measurements. To conduct current for current measurement on a given power rail, cut the trace between the two pins of their respective JP, and insert an ammeter prior to powering up the system. The figure below shows where the trace to cut is located.

**Table 2. SHORTED JUMPERS FOR POWER MEASUREMENT**

| Jumper | Voltage (V) |
|---|---|
| JP1 (From Demo3) | 5.0 |
| JP2 (Peripheral 3.3V) | 3.3 |
| JP3 (VDDIO_LS) | 1.8 |
| JP4 (VDDIO) | 1.8 |
| JP7 (VDD) | 1.8 |
| JP8 (VDD−SLVS) | 1.8 |
| JP9 (VDD−PLL) | 2.8 |
| JP10 (VAA) | 2.8 |
| JP11 (VAA−PIX) | 2.8 |
| JP18 (VDD−SLVS) | 0.4 |

**Figure 7. Top and Bottom View of Shorted Jumper. The Bottom View Shows the Trace Location to Cut for Current Measurement**

### References

All design files; schematics, board design images, Gerber files, as well as the BOM file can be found here: http://www.onsemi.com/PowerSolutions/product.do?id=AR0140CS

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