

# AP1302CSSL00SMGAH-GEVB

## AP1302CS Evaluation Board User's Manual



ON Semiconductor®

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### Evaluation Board Overview

The evaluation boards are designed to demonstrate the features of image sensors products from ON Semiconductor. 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
- MIPI Interface
- ROHS Compliant

### Block Diagram

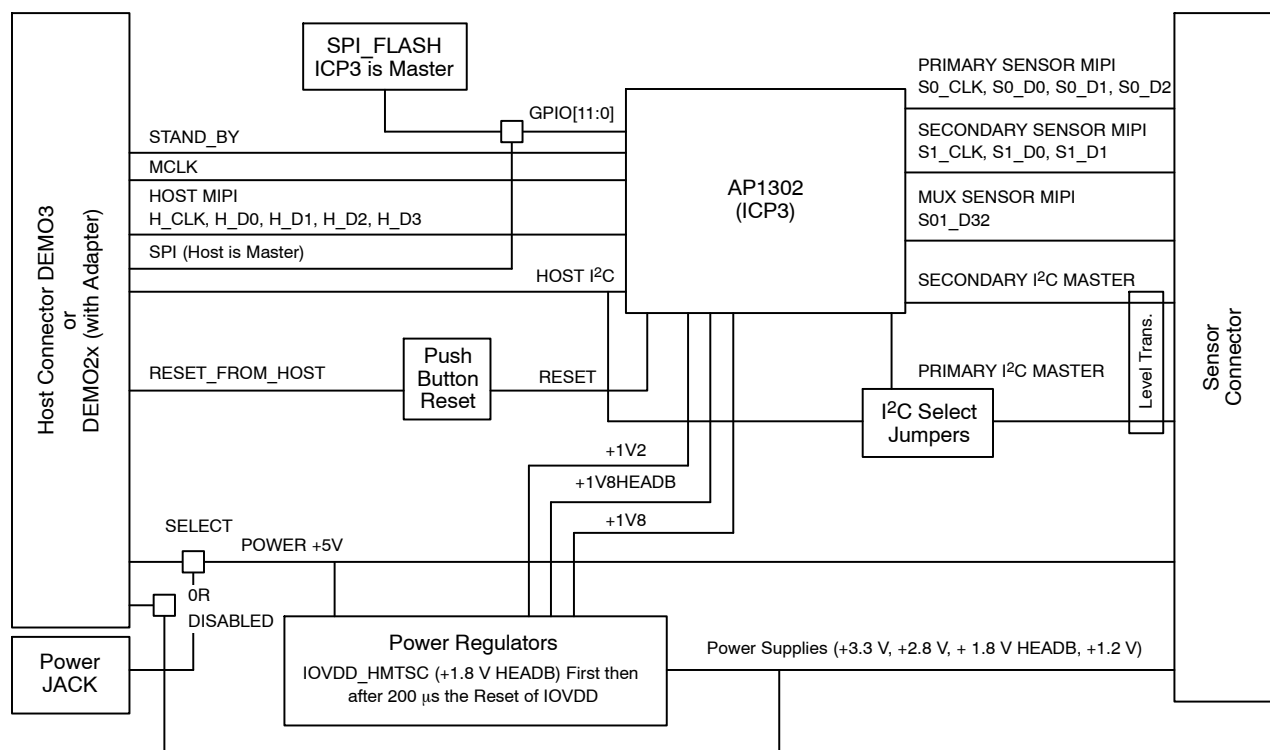


Figure 2. Block Diagram of AP1302CSSL00SMGAH-GEVB

### EVAL BOARD USER'S MANUAL



Figure 1. AP1302CS Evaluation Board

# AP1302CSSL00SMGAH-GEVB

## Top View

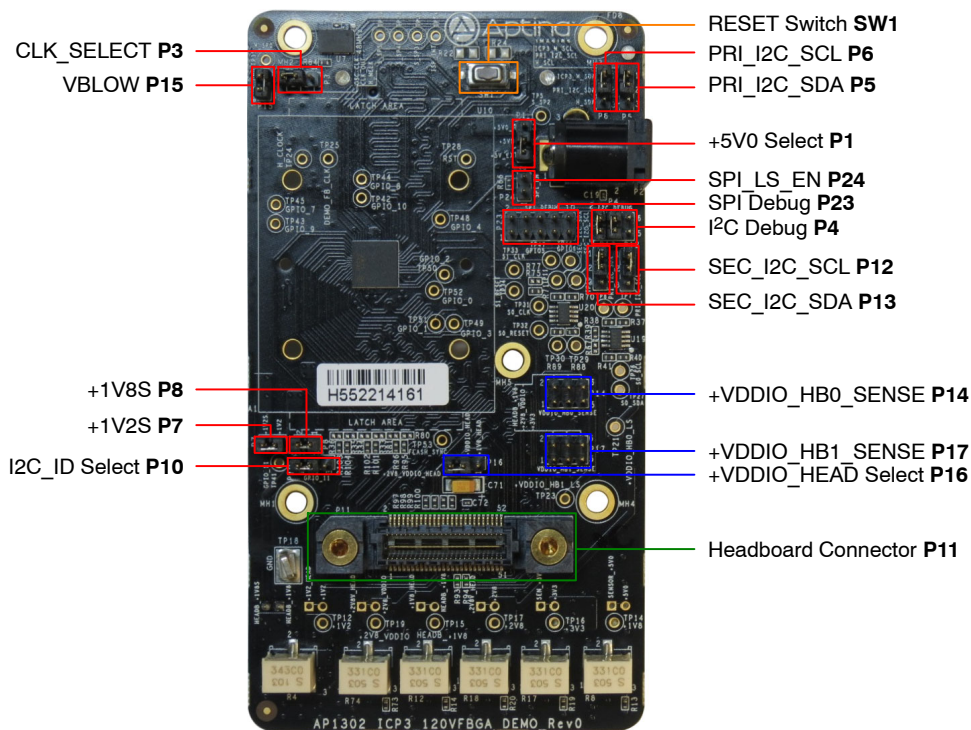


Figure 3. Top View of the Board – Default Jumpers

## Bottom View

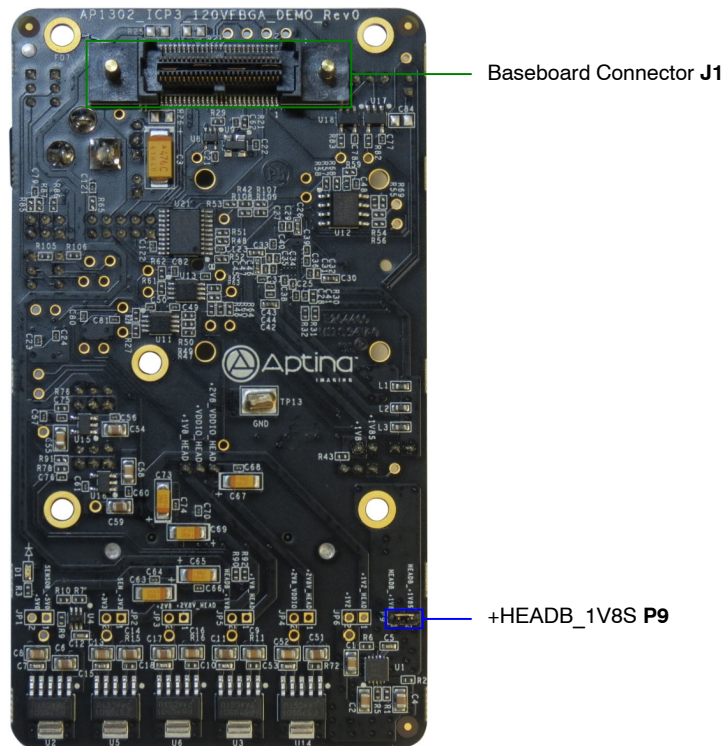


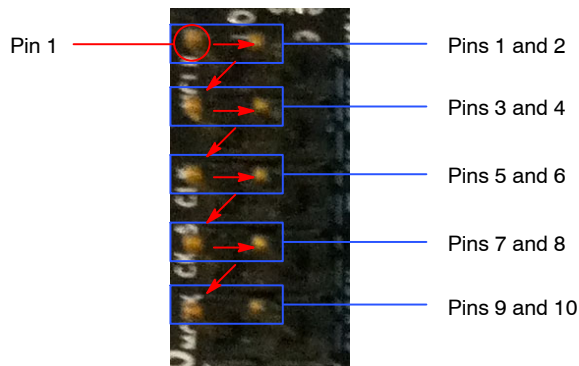
Figure 4. Bottom View of the Board – Connectors

### Jumper Pin Locations

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                                                    |
|-------------------|------------------------|---------------------|----------------------------------------------------------------|
| P1                | +5V0 Select            | 1-2 (Default)       | Use +5V Supply Source from External Power Adapter              |
|                   |                        | 2-3                 | Use +5V Supply Source from Demo 3 Baseboard                    |
| P3                | CLK_SELECT             | 2-3 (Default)       | Select On-board 48 MHz Oscillator Clock                        |
|                   |                        | 1-2                 | Select Clock from Demo 3 Baseboard                             |
| P4                | I <sup>2</sup> C Debug | 1-2 & 3-4 (Default) | Connect to Demo 3 Baseboard I <sup>2</sup> C Interface         |
|                   |                        | Open                | For Connection to External I <sup>2</sup> C Debugger Interface |
| P5                | PRI_I2C_SCL            | 1-2 (Default)       | Connect to ICP3 Master SCL                                     |
|                   |                        | 2-3                 | Connect to Host SCL                                            |
| P6                | PRI_I2C_SDA            | 1-2 (Default)       | Connect to ICP3 Master SDA                                     |
|                   |                        | 2-3                 | Connect to Host SDA                                            |
| P7                | +1V2S                  | Closed (Default)    | Normal Operation                                               |
| P8                | +1V8S                  | Closed (Default)    | Normal Operation                                               |
| P9                | +HEADB_1V8S            | Closed (Default)    | Normal Operation                                               |
| P10               | I2C_ID Select          | 1-2 (Default)       | ICP3 I <sup>2</sup> C Address Set to 0x78                      |
|                   |                        | 2-3                 | ICP3 I <sup>2</sup> C Address Set to 0x7A                      |
| P12               | SEC_I2C_SCL            | 1-2 (Default)       | Connect to ICP3 GPIO6 (2ND_I2C_SCL)                            |
|                   |                        | 2-3                 | Connect to PRI_I2C_SCL                                         |
| P13               | SEC_I2C_SDA            | 1-2 (Default)       | Connect to ICP3 GPIO6 (2ND_I2C_SDA)                            |
|                   |                        | 2-3                 | Connect to PRI_I2C_SDA                                         |

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

| Jumper/Header No. | Jumper/Header Name | Pins               | Description                                             |
|-------------------|--------------------|--------------------|---------------------------------------------------------|
| P14               | +VDDIO_HB0_SENSE   | 1–2 (Default)      | Sets Voltage to +1.8 V (Normal Operation)               |
|                   |                    | 3–4                | Sets Voltage to +2.8 V                                  |
|                   |                    | 5–6                | Sets Voltage to +3.3 V                                  |
| P15               | VBLOW              | Closed (Default)   | Normal Operation                                        |
| P16               | +VDDIO_HEAD Select | 2–3 (Default)      | When using with the Demo 3 Headboard                    |
|                   |                    | 1–2                | When using with the AP21057 Dual Adapter Board          |
| P17               | +VDDIO_HB1_SENSE   | 1–2 (Default)      | Sets Voltage to +1.8 V (Normal Operation)               |
|                   |                    | 3–4                | Sets Voltage to +2.8 V                                  |
|                   |                    | 5–6                | Sets Voltage to +3.3 V                                  |
| P23               | SPI Debug          | Open (Default)     | SPI Interface Disabled                                  |
|                   |                    | 1–2, 3–4, 5–6, 7–8 | SPI Interface Enabled                                   |
| P24               | SPI_LS_EN          | Open (Default)     | SPI Level-shifter Disabled                              |
|                   |                    | 1–2                | SPI Level-shifter Enabled                               |
| SW1               | RESET              | N/A                | When Pushed, 240 ms Reset Signal will be Sent to AP1302 |

#### 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 Jumpers 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.



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

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

| Jumper                | Voltage (V) |
|-----------------------|-------------|
| P1, Pin 1 (+5V0_EXT)  | 5.0         |
| P1, Pin 2 (+5V0)      | 5.0         |
| P1, Pin 3 (+5V0_HOST) | 5.0         |
| TP12 (+1V2)           | 1.2         |
| TP14 (+1V8)           | 1.8         |
| TP15 (+HEAD_1V8)      | 1.8         |
| TP16 (+3V3)           | 3.3         |
| TP17 (+2V8_VAA)       | 2.8         |
| TP19 (+2V8_VDDIO)     | 2.8         |
| TP21 (+VDDIO_HB0_LS)  | 1.8/2.8/3.3 |
| TP23 (+VDDIO_HB1_LS)  | 1.8/2.8/3.3 |

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