Title of Change:	AR0431 Datasheet
Effective date:	21 May 2020
Contact information:	Contact your local ON Semiconductor Sales Office or Sonya.Yip@onsemi.com
Type of notification:	This Product Bulletin is for notification purposes only. ON Semiconductor will proceed with implementation of this change upon publication of this Product Bulletin.
Change Category:	Documentation Change
Change Sub-Category(s):	Datasheet/Product Doc change

Sites Affected:

ON Semiconductor Sites	**External Foundry/Subcon Sites**
None	None

Description and Purpose:

The AR0431 datasheet has been updated with changes to trigger mode information. These changes do not affect form, fit, or function of the product.

AR0431 Datasheet Changes:

1. Updated "Table 4, Ordering Information"

Old Table 4:

Table 4. ORDERING INFORMATION

Part Number	Product Description	Attribute
AR0431CSSC14SMRA0–DP	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack with Protective Film
AR0431CSSC14SMRA0–DP–E	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack with Protective Film Engineering Samples
AR0431CSSC14SMRA0–DP1	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack with Protective Film low MOQ
AR0431CSSC14SMRA0–DR	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack without Protective Film
AR0431CSSC14SMRA0–DR–E	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack without Protective Film Engineering Samples
AR0431CSSC14SMRA0–DR1	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack without Protective Film low MOQ
AR0431CSSC14SMRAH3–GEVB	4 MP 1/3.1" Image Sensor, 14 DEG CRA, RGB–Color	Evaluation Headboard

See the ON Semiconductor Device Nomenclature document (TND310/D) for a full description of the naming convention used for image sensors. For reference documentation, including information on evaluation kits, please visit our web site at www.onsemi.com.

Old Table 4:

Table 4. ORDERING INFORMATION

Part Number	Product Description	Attribute
AR0431CSSC14SMRA0–DP	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack with Protective Film
AR0431CSSC14SMRA0–DP1	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack with Protective Film low MOQ
AR0431CSSC14SMRA0–DR	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack without Protective Film
AR0431CSSC14SMRA0–DR1	4Mp 1/3.1" Image Sensor, 14 deg CRA, RGB–Color, mPLCC package	Drypack without Protective Film low MOQ
AR0431CSSC14SMRAH3–GEVB	4 MP 1/3.1" Image Sensor, 14 DEG CRA, RGB–Color	Evaluation Headboard

See the ON Semiconductor Device Nomenclature document (TND310/D) for a full description of the naming convention used for image sensors. For reference documentation, including information on evaluation kits, please visit our web site at www.onsemi.com.

2. Updated GPI[3:2] description in "Table 5, Signal Descriptions"

Old Table 5:

Table 5. SIGNAL DESCRIPTIONS

Name	mPLCC Pin	Type	Description
EXTCLK	34	Input	Master clock input, 6–48 MHz
XSHUTDOWN	10	Input	Asynchronous active LOW reset. When asserted, data output stops and when de–asserted registers with default values are restored to their factory default. This pin will turn off the analog and digital power domain and is the lowest power state of the sensor.
SCLK	12	Input	Serial clock for access to control and status registers.
GPI[3:2]	13, 14	Input	General purpose inputs. After reset, these pads are powered–down by default; this means that it is not necessary to bond to these pads. These pads can be configured to provide hardware control of: GPI[2]: SADDR, Trigger signal for slave mode and standby. GPI[3]: 3D daisy chain communication input and all options in GPI[2]. ON Semiconductor recommends that unused GPI pins be tied to DGND, but can also be left floating.
GPIO[1:0]	15, 16	I/O	General purpose inputs and outputs. After reset, these pads are not powered–down since its default use is as output. These pads can be configured to provide hardware control of: GPIO[0]: Flash output (default), all input options in GPI[2]. GPIO[1]: Shutter output (default), 3-D daisy chain communication output and all options in GPI[2]. ON Semiconductor recommends that unused GPIO pins be tied to DGND, but can also be left floating.

New Table 5:

Table 5. SIGNAL DESCRIPTIONS

Name	mPLCC Pin	Type	Description
EXTCLK	34	Input	Master clock input, 6–48 MHz
XSHUTDOWN	10	Input	Asynchronous active LOW reset. When asserted, data output stops and when de–asserted registers with default values are restored to their factory default. This pin will turn off the analog and digital power domain and is the lowest power state of the sensor.
SCLK	12	Input	Serial clock for access to control and status registers.
GPI[3:2]	13, 14	Input	General purpose inputs. After reset, these pads are powered–down by default; this means that it is not necessary to bond to these pads. These pads can be configured to provide hardware control of: GPI[2]: SADDR and standby. GPI[3]: 3D daisy chain communication input and all options in GPI[2]. ON Semiconductor recommends that unused GPI pins be tied to DGND, but can also be left floating.

3. Removed trigger from "Table 8, General Purpose Input and Output Pad Functions"

Old Table 8:

Table 8. GENERAL PURPOSE INPUT AND OUTPUT PAD FUNCTIONS

PIN Names	Functions
GPIO[0]	General Input and one Output a. (Default Output) Flash b. (Input) All options in GPI2
GPIO[1]	General Input and two Output functions a. (Default Output) Shutter b. (Output) 3-D daisy chain communication output c. (Input) all options in GPI2
GPI[2]	General Input a. SADDR, second I²C device address b. Trigger signal for Slave Mode c. Standby
GPI[3]	General Input a. 3-D daisy chain communication input b. All options in GPI2

New Table 8:

Table 8. GENERAL PURPOSE INPUT AND OUTPUT PAD FUNCTIONS

PIN Names	Functions
GPIO[0]	General Input and one Output a. (Default Output) Flash b. (Input) All options in GPI2
GPIO[1]	General Input and two Output functions a. (Default Output) Shutter b. (Output) 3-D daisy chain communication output c. (Input) all options in GPI2
GPI[2]	General Input a. SADDR, second I²C device address b. Standby
GPI[3]	General Input a. 3-D daisy chain communication input b. All options in GPI2

4. Removed trigger from "Multi-Camera Synchronization" section

Old Section: New Section:

MULTI–CAMERA SYNCHRONIZATION
   In order to make sure that cameras in a 3D system are working in sync, two synchronization methods are supported, Trigger Mode and Global Start.

MULTI–CAMERA SYNCHRONIZATION
   In order to make sure that cameras in a 3D system are working in sync, two synchronization methods are supported, Soft Trigger Mode and Global Start.

5. Updated "Trigger Mode" section

Old Section: New Section:

TRIGGER MODE
   The sensors should be wired as Figures 20. A sensor GPI is configured as the TRIGGER pin. Each sensor runs like standalone, except being configured as trigger mode. It needs external pulses to start and keep streaming. The host should transmit the pulses to the sensor TRIGGER pins. All sensors should share the same trigger pulse signal and the same EXTCLK.

SOFT TRIGGER MODE
   AR0430 supports soft trigger, where multiple sensors are on the same I2C bus. The host can broadcast the command to start and then stop streaming to perform a soft trigger. The timing to send the stop streaming command can be tuned so that the sensor sends out the number of frames that are needed.

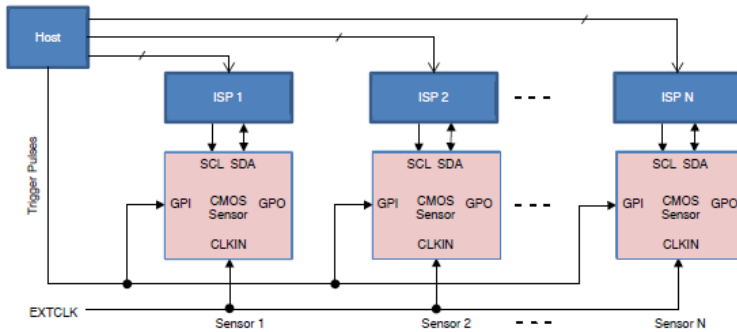**6. Removed "Figure 20, Trigger Mode Block Diagram"**

Figure 20. Trigger Mode Block Diagram

List of Affected Standard Parts:

Note: Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the **PCN Customized Portal**.

AR0431CSSC14SMRA0-DP	AR0431CSSC14SMRA0-DP1	AR0431CSSC14SMRA0-DR
AR0431CSSC14SMRA0-DR1		