



Title of Change:	Enabled ASIL support functions and datasheet specification updated for AR0231AT																			
Effective date:	6 November 2018																			
Contact information:	Contact your local ON Semiconductor Sales Office or <Bharath.Nagabhushanam@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:	<input type="checkbox"/> Wafer Fab Change <input type="checkbox"/> Assembly Change <input type="checkbox"/> Test Change <input checked="" type="checkbox"/> Other <u>Documentation</u>																			
Change Sub-Category(s):	<input type="checkbox"/> Manufacturing Site Addition <input type="checkbox"/> Manufacturing Site Transfer <input type="checkbox"/> Manufacturing Process Change <input type="checkbox"/> Material Change <input type="checkbox"/> Product specific change <input checked="" type="checkbox"/> Datasheet/Product Doc change <input type="checkbox"/> Shipping/Packaging/Marking <input type="checkbox"/> Other: _____																			
Sites Affected:	ON Semiconductor Sites: None	External Foundry/Subcon Sites: None																		
Description and Purpose:																				
<p>ON Semiconductor is enabling ASIL support functions to run at startup and log calibration values on AR0231AT. The updates outlined in this document did not require a process or physical change to the AR0231AT design. The ASIL safety mechanisms were already implemented into the existing AR0231AT image sensor's design. Activation of the ASIL safety mechanisms required changes to some of the existing default register values. The AR0231AT will automatically enable the ASIL startup safety mechanisms tests while the part completes a full power-up sequence. The startup ASIL safety mechanism test results will be available to the host upon completion of the power-up sequence. Enabling the startup ASIL safety mechanisms requires an increase in boot-time to allow the safety mechanisms to fully complete testing. This document outlines the boot-time and default registers that are required to identify and enable the startup ASIL safety mechanisms of the AR0231AT image sensor. Information for identifying the AR0231AT image sensors enabled to support ASIL-B compliant camera systems is shown in Table 1. Table 2 below outlines the register details.</p> <p>As per the AR0231AT developer guide, ON Semiconductor is notifying all customers that ASIL safety features are now enabled on REV7.2 onwards. REV 7.1 will not run safety features at boot up but will otherwise be functional for the same ASIL modes on user command. All other functions remain the same.</p> <p>How to Identify Changes</p> <p>1. ON Semiconductor will increase the customer revision number to indicate the AR0231AT image sensor provides safety functions to support an ASIL-B camera compliant system. Table 1 below outlines the register details and information for identifying the AR0231AT image sensors capability to support an ASIL-B compliant camera system.</p> <p><i>Table 1: AR0231AT Register identification for supporting ASIL-B compliant camera systems</i></p> <table border="1"> <thead> <tr> <th>Customer Revision #</th> <th>Register Name</th> <th>Register Address</th> <th>Bit Mask</th> <th>Register Contents with Bit Mask</th> <th>Supports ASIL B Compliance Camera System</th> </tr> </thead> <tbody> <tr> <td>7.1</td> <td>CUSTOMER_REVISION</td> <td>0x31FE</td> <td>0xFC0F</td> <td>0x0407</td> <td>NO</td> </tr> <tr> <td>7.2</td> <td>CUSTOMER_REVISION</td> <td>0x31FE</td> <td>0xFC0F</td> <td>0x0807</td> <td>YES</td> </tr> </tbody> </table>			Customer Revision #	Register Name	Register Address	Bit Mask	Register Contents with Bit Mask	Supports ASIL B Compliance Camera System	7.1	CUSTOMER_REVISION	0x31FE	0xFC0F	0x0407	NO	7.2	CUSTOMER_REVISION	0x31FE	0xFC0F	0x0807	YES
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7.1	CUSTOMER_REVISION	0x31FE	0xFC0F	0x0407	NO															
7.2	CUSTOMER_REVISION	0x31FE	0xFC0F	0x0807	YES															



Updates to enable safety functions supporting ASIL B camera compliance

2. New ASIL startup tests will run on the AR0231AT after power-up or after a reset

- a. Boot-time t3 is 650,000 external clock cycles.
 - i. SM_OTPM_UPLOAD_CRC
 - ii. SM_PDI_UPLOAD_CRC
 - iii. SM_STANDBY_REGISTER_CRC
 - iv. SM_STANDBY_BIST_MEMORY
- b. The SYS_CHECK pin will signal any failures from the four ASIL startup tests
 - i. SM_SYS_CHECK

3. Temperature flags will disable boosters and booster/voltage monitoring if the sensor goes above Tj≈125°C

- a. TEMP_FLAG hardware pin will now output indications of temp sensor red and yellow flag failures
 - i. SM_TEMP_SENSOR

4. Table 2 shows the safety function related registers that will be programmed with new default values. The registers below have been programmed on REV 7.2 and are usable to establish ASIL B compliance in a camera system.

Table 2: AR0231AT Registers that are updated and related to safety functions.

Register Address	Previous Default Value	New Default Value	Register Name	Description
0x3C40	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_12	Booster Monitor Offset Value
0x3C42	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_14	Booster Monitor Offset Value
0x3C44	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_15	Booster Monitor Offset Value
0x3C46	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_16	Booster Monitor Offset Value
0x3C48	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_17	Booster Monitor Offset Value
0x3C10	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_00	Booster Monitor Slope Value
0x3C12	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_01	Booster Monitor Slope Value
0x3C14	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_02	Booster Monitor Slope Value
0x3C16	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_03	Booster Monitor Slope Value
0x3C18	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_04	Booster Monitor Slope Value
0x3C1A	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_05	Booster Monitor Slope Value
0x3C1C	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_06	Booster Monitor Slope Value
0x3C1E	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_07	Booster Monitor Slope Value
0x3C20	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_08	Booster Monitor Slope Value
0x3C22	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_09	Booster Monitor Slope Value
0x3C28	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_12	Booster Monitor Slope Value
0x3C2C	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_14	Booster Monitor Slope Value
0x3C2E	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_15	Booster Monitor Slope Value
0x3C30	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_16	Booster Monitor Slope Value
0x3C32	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_17	Booster Monitor Slope Value
0x3C38	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_20	Booster Monitor Slope Value
0x3C50	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_0	Voltage Monitor Slope Value
0x3C52	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_1	Voltage Monitor Slope Value
0x3C54	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_2	Voltage Monitor Slope Value
0x3C56	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_3	Voltage Monitor Slope Value
0x3C58	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_4	Voltage Monitor Slope Value
0x3C5A	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_5	Voltage Monitor Slope Value
0x3C5C	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_6	Voltage Monitor Slope Value
0x3C60	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_0	Voltage Monitor Slope Value
0x3C62	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_1	Voltage Monitor Slope Value



0x3C64	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_2	Voltage Monitor Slope Value
0x3C66	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_3	Voltage Monitor Slope Value
0x3C68	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_4	Voltage Monitor Slope Value
0x3C6A	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_5	Voltage Monitor Slope Value
0x3C6C	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_6	Voltage Monitor Slope Value
0x3F94	0xFFFF	Part Specific	TEMPSENS0_FLAG_CTRL	Temp Sensor Red & Yellow Flag
0x3F96	0xFFFF	Part Specific	TEMPSENS1_FLAG_CTRL	Temp Sensor Red & Yellow Flag
0x5100	0x0002	0x0008 ⁱⁱ	EMBED_CRC_MAP00	Register Exclusions for Startup Tests
0x5106	0x0000	0x0001 ⁱⁱⁱ	EMBED_CRC_MAP03	Register Exclusions for Startup Tests
0x511A	0x0000	0x0004 ^{iv}	EMBED_CRC_MAP13	Register Exclusions for Startup Tests
0x5122	0x0000	0x1000 ^v	EMBED_CRC_MAP17	Register Exclusions for Startup Tests
0x5136	0x0024	0x0CC0 ^{vi}	EMBED_CRC_MAP27	Register Exclusions for Startup Tests
0x513A	0x0000	0x0010 ^{vii}	EMBED_CRC_MAP29	Register Exclusions for Startup Tests
0x5150	0x0000	0x0038 ^{viii}	EMBED_CRC_MAP40	Register Exclusions for Startup Tests
0x515E	0x0000	0x4400 ^{ix}	EMBED_CRC_MAP47	Register Exclusions for Startup Tests
0x3318	0x0000	Part Specific	IREG_WRT_CHECKSUM	Startup Test Register
0x3320	0x0000	Part Specific	IREG_CALC_CHECKSUM	Startup Test Register
0x3316	0x0000	Part Specific	OTPM_WRT_CHECKSUM	Startup Test Register
0x331E	0x0000	Part Specific	OTPM_CALC_CHECKSUM	Startup Test Register
0x331A	0x0000	Part Specific	PDIM_WRT_CHECKSUM	Startup Test Register
0x3322	0x0000	Part Specific	PDIM_CALC_CHECKSUM	Startup Test Register
0x3760	0x0000	0x00E7	MBIST_STARTUP_CONTROL	Startup Test Register
0x3764	0x0000	Test Result*	MBIST_STARTUP_STATUS	Startup Test Register
0x3762	0x0000	Test Result	MBIST_STARTUP_RESULT	Startup Test Register
0x3F66	0x0000	0x011E	ASIL_STARTUP_ENABLES_00	Startup Test Register
0x3F6E	0x0000	0x000E	ASIL_STARTUP_PIN_ENABLES_00	Startup Test Register
0x2068	0x0000	Test Result	ASIL_STARTUP_STATUS_00	Startup Test Register

5. Data sheet Addition: Boot-time t3 set to 650,000 external clock cycles.

List of Affected Parts:

AR0231AT7C00XUEA0-DRBR-E	AR0231AT7B00XUEA0-DPBR-E	AR0231AT7B00XUEA0-DPBR	AR0231AT7C00XUEA0-TPBR
AR0231AT7C00XUEA0-DPBR-E	AR0231AT7C00XUD20-E	AR0231AT7B00XUEA0-DRBR	AR0231AT7R00XUD20
AR0231AT7R00XUEA0-DRBR-E	AR0231AT7R00XUD20-E	AR0231AT7B00XUEA0-TPBR	AR0231AT7R00XUEA0-DPBR
AR0231AT7R00XUEA0-DPBR-E	AR0231AT7B00XUD20-E	AR0231AT7C00XUD20	AR0231AT7R00XUEA0-DRBR
AR0231AT7B00XUEA0-DRBR-E	AR0231AT5B21XUEA0-DRBR	AR0231AT7C00XUEA0-DPBR	AR0231AT7R00XUEA0-TPBR
	AR0231AT7B00XUD20	AR0231AT7C00XUEA0-DRBR	



ⁱ “Part Specific” implies the value of a register is specific to each image sensor and can be different between sensors

ⁱⁱ Excludes GPI_STATUS register during power-up. Host may need to re-include the register if host wants the register contents to be included into SM_STANDBY_REGISTER_CRC and SM_HOST_CHECK_EMBEDDED_REGISTER_DATA.

ⁱⁱⁱ Excludes ASIL_STARTUP_STATUS_00 register during power-up. Host may need to re-include the register if host wants the register contents to be included into SM_STANDBY_REGISTER_CRC and SM_HOST_CHECK_EMBEDDED_REGISTER_DATA.

^{iv} Excludes OTPM_MANUAL_ADDR register during power-up. Host may need to re-include the register if host wants the register contents to be included into SM_STANDBY_REGISTER_CRC and SM_HOST_CHECK_EMBEDDED_REGISTER_DATA.

^v Excludes OTPM_DATA_MANUAL_EXTRA register during power-up. Host may need to re-include the register if host wants the register contents to be included into SM_STANDBY_REGISTER_CRC and SM_HOST_CHECK_EMBEDDED_REGISTER_DATA.

^{vi} Excludes IREG_WRT_CHECKSUM, IREG_CALC_CHECKSUM, OTPM_WRT_CHECKSUM, & OTPM_CALC_CHECKSUM registers during power-up. Host may need to re-include the register if host wants the register contents to be included into SM_STANDBY_REGISTER_CRC and SM_HOST_CHECK_EMBEDDED_REGISTER_DATA.

^{vii} Excludes I2C_RD_CHECKSUM register during power-up. Host may need to re-include the register if host wants the register contents to be included into SM_STANDBY_REGISTER_CRC and SM_HOST_CHECK_EMBEDDED_REGISTER_DATA.

^{viii} Excludes MBIST_STARTUP_CONTROL, MBIST_STARTUP_STATUS, & MBIST_STARTUP_RESULT register during power-up. Host may need to re-include the register if host wants the register contents to be included into SM_STANDBY_REGISTER_CRC and SM_HOST_CHECK_EMBEDDED_REGISTER_DATA.

^{ix} Excludes ASIL_STARTUP_PIN_ENABLES_00 & ASIL_STARTUP_ENABLES_00 register during power-up. Host may need to re-include the register if host wants the register contents to be included into SM_STANDBY_REGISTER_CRC and SM_HOST_CHECK_EMBEDDED_REGISTER_DATA.

^x “Test Result” implies the value of a register represents the test results of a safety mechanism(s) and has the potential to change value to indicate a fault

Japanese translation of the notification starts here.
通知の日本語訳はここから始まります。

Note: The Japanese version is for reference only. In case of any differences between the English and Japanese version, the English version shall control.

注：日本語版は参照用です。英語版と日本語版の違いがある場合は、英語版が優先されます。



ASIL B 準拠カメラ システムをサポートする安全機能を有効にするための更新

2. 新しい ASIL 起動テストは、パワーアップ後またはリセット後に AR0231AT で実行されます。

- a. ブートタイム t_3 は 650,000 外部クロック サイクルです。
 - i. `SM_OTPM_UPLOAD_CRC`
 - ii. `SM_PDI_UPLOAD_CRC`
 - iii. `SM_STANDBY_REGISTER_CRC`
 - iv. `SM_STANDBY_BIST_MEMORY`
- b. `SYS_CHECK` ピンは、4 つの ASIL 起動テストでの不具合を知らせます
 - i. `SM_SYS_CHECK`

3. 温度フラグは、センサーが $T_j \geq 125^\circ\text{C}$ を超えるとブースターとブースター/電圧監視を無効にします。

- a. `TEMP_FLAG` ハードウェア ピンは、温度センサーの赤および黄色フラグの不具合表示を出力します。
 - i. `SM_TEMP_SENSOR`

4. 表 2 は、新しいデフォルト値でプログラムされる安全機能関連のレジスタを示しています。以下のレジスタ一覧は REV 7.2 でプログラムされており、カメラシステムを ASIL B 準拠とするために使用します。

表 2: 更新された安全機能に関連する AR0231AT レジスタ一覧

レジスタアドレス	以前のデフォルト値	新しいデフォルト値	レジスタ名	説明
0x3C40	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_12	Booster Monitor Offset Value
0x3C42	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_14	Booster Monitor Offset Value
0x3C44	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_15	Booster Monitor Offset Value
0x3C46	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_16	Booster Monitor Offset Value
0x3C48	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_OFFSET_17	Booster Monitor Offset Value
0x3C10	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_00	Booster Monitor Slope Value
0x3C12	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_01	Booster Monitor Slope Value
0x3C14	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_02	Booster Monitor Slope Value
0x3C16	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_03	Booster Monitor Slope Value
0x3C18	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_04	Booster Monitor Slope Value
0x3C1A	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_05	Booster Monitor Slope Value
0x3C1C	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_06	Booster Monitor Slope Value
0x3C1E	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_07	Booster Monitor Slope Value
0x3C20	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_08	Booster Monitor Slope Value
0x3C22	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_09	Booster Monitor Slope Value
0x3C28	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_12	Booster Monitor Slope Value
0x3C2C	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_14	Booster Monitor Slope Value
0x3C2E	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_15	Booster Monitor Slope Value
0x3C30	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_16	Booster Monitor Slope Value
0x3C32	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_17	Booster Monitor Slope Value
0x3C38	0x0000	Part Specific	TEMPVSENS_BOOST_CAL_SLOPE_20	Booster Monitor Slope Value
0x3C50	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_0	Voltage Monitor Slope Value
0x3C52	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_1	Voltage Monitor Slope Value
0x3C54	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_2	Voltage Monitor Slope Value
0x3C56	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_3	Voltage Monitor Slope Value
0x3C58	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_4	Voltage Monitor Slope Value
0x3C5A	0x0000	Part Specific	TEMPVSENS0_VMON_CAL_SLOPE_5	Voltage Monitor Slope Value
0x3C5C	0x0000	Part Specific ⁱ	TEMPVSENS0_VMON_CAL_SLOPE_6	Voltage Monitor Slope Value
0x3C60	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_0	Voltage Monitor Slope Value
0x3C62	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_1	Voltage Monitor Slope Value



0x3C64	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_2	Voltage Monitor Slope Value
0x3C66	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_3	Voltage Monitor Slope Value
0x3C68	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_4	Voltage Monitor Slope Value
0x3C6A	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_5	Voltage Monitor Slope Value
0x3C6C	0x0000	Part Specific	TEMPVSENS1_VMON_CAL_SLOPE_6	Voltage Monitor Slope Value
0x3F94	0xFFFFE	Part Specific	TEMPSENS0_FLAG_CTRL	Temp Sensor Red & Yellow Flag
0x3F96	0xFFFFE	Part Specific	TEMPSENS1_FLAG_CTRL	Temp Sensor Red & Yellow Flag
0x5100	0x0002	0x0008 ⁱⁱ	EMBED_CRC_MAP00	Register Exclusions for Startup Tests
0x5106	0x0000	0x0001 ⁱⁱⁱ	EMBED_CRC_MAP03	Register Exclusions for Startup Tests
0x511A	0x0000	0x0004 ^{iv}	EMBED_CRC_MAP13	Register Exclusions for Startup Tests
0x5122	0x0000	0x1000 ^v	EMBED_CRC_MAP17	Register Exclusions for Startup Tests
0x5136	0x0024	0x0CC0 ^{vi}	EMBED_CRC_MAP27	Register Exclusions for Startup Tests
0x513A	0x0000	0x0010 ^{vii}	EMBED_CRC_MAP29	Register Exclusions for Startup Tests
0x5150	0x0000	0x0038 ^{viii}	EMBED_CRC_MAP40	Register Exclusions for Startup Tests
0x515E	0x0000	0x4400 ^{ix}	EMBED_CRC_MAP47	Register Exclusions for Startup Tests
0x3318	0x0000	Part Specific	IREG_WRT_CHECKSUM	Startup Test Register
0x3320	0x0000	Part Specific	IREG_CALC_CHECKSUM	Startup Test Register
0x3316	0x0000	Part Specific	OTPM_WRT_CHECKSUM	Startup Test Register
0x331E	0x0000	Part Specific	OTPM_CALC_CHECKSUM	Startup Test Register
0x331A	0x0000	Part Specific	PDIM_WRT_CHECKSUM	Startup Test Register
0x3322	0x0000	Part Specific	PDIM_CALC_CHECKSUM	Startup Test Register
0x3760	0x0000	0x00E7	MBIST_STARTUP_CONTROL	Startup Test Register
0x3764	0x0000	Test Result*	MBIST_STARTUP_STATUS	Startup Test Register
0x3762	0x0000	Test Result	MBIST_STARTUP_RESULT	Startup Test Register
0x3F66	0x0000	0x011E	ASIL_STARTUP_ENABLES_00	Startup Test Register
0x3F6E	0x0000	0x000E	ASIL_STARTUP_PIN_ENABLES_00	Startup Test Register
0x2068	0x0000	Test Result	ASIL_STARTUP_STATUS_00	Startup Test Register

5. データシートの追加: ブートタイム t3 は 650,000 外部クロック サイクルに設定されています。

影響を受ける部品の一覧:

AR0231AT7C00XUEA0-DRBR-E	AR0231AT7B00XUEA0-DPBR-E	AR0231AT7B00XUEA0-DPBR	AR0231AT7C00XUEA0-TPBR
AR0231AT7C00XUEA0-DPBR-E	AR0231AT7C00XUD20-E	AR0231AT7B00XUEA0-DRBR	AR0231AT7R00XUD20
AR0231AT7R00XUEA0-DRBR-E	AR0231AT7R00XUD20-E	AR0231AT7B00XUEA0-TPBR	AR0231AT7R00XUEA0-DPBR
AR0231AT7R00XUEA0-DPBR-E	AR0231AT7B00XUD20-E	AR0231AT7C00XUD20	AR0231AT7R00XUEA0-DRBR
AR0231AT7B00XUEA0-DRBR-E	AR0231AT5B21XUEA0-DRBR	AR0231AT7C00XUEA0-DPBR	AR0231AT7R00XUEA0-TPBR
	AR0231AT7B00XUD20	AR0231AT7C00XUEA0-DRBR	



i「部品固有」とは、レジスタ一覧の値が各イメージセンサーに固有であり、センサーごとに異なる可能性があるということを意味します。

ii パワーアップ中の GPI_STATUS レジスタは除外します。ホストでレジスタの内容を SM_STANDBY_REGISTER_CRC および SM_HOST_CHECK_EMBEDDED_REGISTER_DATA に組み込みたい場合は、レジスタの再設定が必要になることがあります。

iii パワーアップ中の ASIL_STARTUP_STATUS_00 レジスタは除外します。ホストでレジスタの内容を SM_STANDBY_REGISTER_CRC および SM_HOST_CHECK_EMBEDDED_REGISTER_DATA に組み込みたい場合は、レジスタの再設定が必要になることがあります。

iv パワーアップ中の OTPM_MANUAL_ADDR レジスタは除外します。ホストでレジスタの内容を SM_STANDBY_REGISTER_CRC および SM_HOST_CHECK_EMBEDDED_REGISTER_DATA に組み込みたい場合は、レジスタの再設定が必要になることがあります。

v パワーアップ中の OTPM_DATA_MANUAL_EXTRA レジスタは除外します。ホストでレジスタの内容を SM_STANDBY_REGISTER_CRC および SM_HOST_CHECK_EMBEDDED_REGISTER_DATA に組み込みたい場合は、レジスタの再設定が必要になることがあります。

vi パワーアップ中の IREG_WRT_CHECKSUM、IREG_CALC_CHECKSUM、OTPM_WRT_CHECKSUM、および OTPM_CALC_CHECKSUM レジスタは除外します。ホストでレジスタの内容を SM_STANDBY_REGISTER_CRC および SM_HOST_CHECK_EMBEDDED_REGISTER_DATA に組み込みたい場合は、レジスタの再設定が必要になることがあります。

vii パワーアップ中の I2C_RD_CHECKSUM レジスタは除外します。ホストでレジスタの内容を SM_STANDBY_REGISTER_CRC および SM_HOST_CHECK_EMBEDDED_REGISTER_DATA に組み込みたい場合は、レジスタの再設定が必要になることがあります。

viii パワーアップ中の MBIST_STARTUP_CONTROL、MBIST_STARTUP_STATUS、および MBIST_STARTUP_RESULT レジスタは除外します。ホストでレジスタの内容を SM_STANDBY_REGISTER_CRC および SM_HOST_CHECK_EMBEDDED_REGISTER_DATA に組み込みたい場合は、レジスタの再設定が必要になることがあります。

ix パワーアップ中の ASIL_STARTUP_PIN_ENABLES_00 および ASIL_STARTUP_ENABLES_00 レジスタは除外します。ホストでレジスタの内容を SM_STANDBY_REGISTER_CRC および SM_HOST_CHECK_EMBEDDED_REGISTER_DATA に組み込みたい場合は、レジスタの再設定が必要になることがあります。

x「テスト結果」は安全機能テストの結果を表すレジスタの値で示され、不具合を示すために値が変わります。

Appendix A: Changed Products

Product	Customer Part Number
AR0231AT7C00XUEA0-DPBR	
AR0231AT7C00XUEA0-DRBR	
AR0231AT7C00XUEA0-TPBR	