This anomaly list represents the known bugs, anomalies, and workarounds for the ADuC845, ADuC847, and ADuC848 MicroConverter products. The anomalies listed apply to all ADuC845/ADuC847/ADuC848 packaged material branded as follows:

First (CSP) / Second (PQFP) Line: ADuC845 or ADuC847 or ADuC848
Third (CSP) / Fourth Line (PQFP): C20

Analog Devices, Inc. is committed, through future silicon revisions, to continuously improving silicon functionality. Analog Devices tries to ensure that these future silicon revisions remain compatible with your present software/systems implementing the recommended workarounds outlined here.

**ADuC845/ADuC847/ADuC848 SILICON REVISION HISTORY**

<table>
<thead>
<tr>
<th>Silicon Revision Identifier</th>
<th>Kernel Revision Identifier</th>
<th>Chip Marking</th>
<th>Silicon Status</th>
<th>Anomaly Sheet</th>
<th>No. of Reported Anomalies</th>
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<tbody>
<tr>
<td>C</td>
<td>0</td>
<td>All silicon branded ADUC845BS or ADuC845BCP ADuC847BS or ADuC847BCP ADuC8484BS or ADuC848BCP Third/Fourth Line: C20</td>
<td>Release</td>
<td>Rev. B</td>
<td>7</td>
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</table>

**ANOMALIES**

1. **Interrupts During Reading/Writing to DATAFLASH/EE [er001]**

   **Background:** There are 4 kB of DATAFLASH/EE that can be used for nonvolatile data storage.
   **Issue:** If an interrupt occurs during a DATAFLASH/EE read or write operation, code execution following the ISR may resume at a random program memory address.
   **Workaround:** Disable all interrupts prior to a read or write operation. This can be done by setting the EA bit to 0.
   **Related Issues:** None.

2. **PWM Operation [er002]**

   **Background:** The PWM output rate is determined by the PWMxH and PWMxL registers for the PWM0 and PWM1 outputs.
   **Issue:** Modifying RAM address 2EH causes the PWM timer to be reset.
   **Workaround:**
   - **For Assembly code:** Do not use memory location 2EH.
   - **For C code:** Assign a dummy variable to location 0x2E using the following code:
     ```c
    idata unsigned int ui32Dummy[2] _at_ 0x2E;
     ```
   **Related Issues:** None.
3. I²C Operation [er003]

**Background:** The I2CDAT register is used to read or write data to the I²C bus. The I2CDAT register has an SFR address of 9AH. During an I²C transfer, if a user accesses the RAM address 9AH, the contents of the I2CDAT SFR can be modified.

**Issue:**

**Workaround A:**

- For Assembly code: Do not use memory location 9AH.
- For C code: Assign a dummy variable to location 0x9A by using the following code, thereby preventing C from using it.

  ```
  idata unsigned int ui32Dummy[2] _at_ 0x9A;
  ```

**Related Issues:** None.

4. ADC Noise [er004]

**Background:** The ADuC845 incorporates two 24-bit Σ-∆ ADCs, and the ADuC847 and ADuC848 incorporate a 24-bit and 16-bit Σ-∆ ADC, respectively. These ADCs are specified for typical noise performance as described in the relevant noise tables of the data sheet.

**Issue:** ADC noise performance degrades when operating at maximum MCU clock frequency as determined via the CD bits in the PLLCON SFR.

**Workaround:** For the duration of an ADC conversion, the CD bits should be set to 3 or greater. Note that the default CD setting is 3.

**Related Issues:** None.

5. Watchdog Timer [er005]

**Background:** The ADuC845, ADuC847, and ADuC848 incorporate a watchdog timer. The purpose of the WDT is to ensure that the part is never stuck in an endless loop by generating either a hardware reset or an interrupt event that vectors to the WDT ISR.

**Issue:** If the WDT generates an interrupt as opposed to a hardware reset, and if the ISR subsequently sets up the WDT to time out to a hardware reset, the reset is ignored.

**Workaround:** Ensure that a double write to the WDCON is executed inside the ISR, with the first write being a reset of the WDT. For example:

```c
void isr_wdt( void ) interrupt 11
{
  WDWR = 1;   // This first WDT write is required to get the WDT to work inside the ISR.
  WDCON  = 0x60; // Reset WDT.
  WDWR = 1;   // Now set the WDT to the required 1s timeout
  WDCON  = 0x62; // select reset after 1000mS
  while(1);
}
```

**Related Issues:** None.

6. Stack Pointer in ULOAD Mode [er006]

**Background:** When starting user code, the stack pointer should, by default, be initialized to Address 07H. In ULOAD mode, the stack pointer defaults to 03H causing conflict between RAM locations R4 to R7 and the stack.

**Issue:**

**Workaround:** Manually change in code the stack pointer address to 07H or to the address that is required upon entry to ULOAD mode, that is,

```c
MOV SP, #07H
or
SP = 0x07;
```

**Related Issues:** None.
7. Level-Triggered Interrupt Operation [er007]

<table>
<thead>
<tr>
<th>Background:</th>
<th>The ADuC845/ADuC847/ADuC848 incorporate two external interrupt sources (INT0 and INT1) that can be configured to respond to either an edge event or a level event.</th>
</tr>
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<tbody>
<tr>
<td>Issue:</td>
<td>If an interrupt occurs on the INT0 or INT1 pins and is then removed within one core instruction cycle, the interrupt vector address that is generated may be incorrect, resulting in a vector to 0000H. This effectively restarts code execution.</td>
</tr>
<tr>
<td>Workaround:</td>
<td>To ensure that this does not occur, the level-triggered interrupt source must be kept low for a minimum of nine core clock cycles.</td>
</tr>
<tr>
<td>Related Issues:</td>
<td>None.</td>
</tr>
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</table>
## ADuC845/ADuC847/ADuC848 SILICON ANOMALIES

<table>
<thead>
<tr>
<th>Anomaly No.</th>
<th>Description</th>
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<td>er001</td>
<td>Interrupts During Reading/Writing to DATAFLASH/EE</td>
<td>Pending</td>
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<tr>
<td>er002</td>
<td>PWM Operation</td>
<td>Pending</td>
</tr>
<tr>
<td>er003</td>
<td>I(^2)C Operation</td>
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<td>er004</td>
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<td>er005</td>
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<tr>
<td>er006</td>
<td>Stack Pointer in ULOAD Mode</td>
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<tr>
<td>er007</td>
<td>Level Triggered Interrupt Operation</td>
<td>Pending</td>
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