



MicroConverter[®], Multi-Channel 12-bit ADCs and DACs with Embedded FLASH MCU

Errata Sheet

ADuC832

A. This Errata sheet contains the following known bugs, anomalies and work-arounds for the ADuC832 MicroConverter

832_S01. NUMBER OF ADC CLOCKS IN PIPLINED MODE

832_S02. DAC CLEAR BIT FUNCTIONALITY

832_S03. EXTENDED (11-BIT) STACK POINTER - PUSH AND POP OPERATION

B. The Errata listed, apply to all ADuC832 packaged material branded as follows:

First Line: **ADuC832XX**

Fourth Line: **BXX**

C. Analog Devices Inc. is committed, through future silicon revisions to continuously improve silicon functionality. Analog Devices Inc. will use its best endeavors to ensure that these future silicon revisions remain compatible with your present software/systems that implement the recommended work-arounds outlined in this document.

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832_S01. NUMBER OF ADC CLOCKS IN PIPLINED MODE

- Background:** An adc conversion takes 16 ADC clocks plus the selected acquisition clocks.
- Issue:** At voltages below 3.5V in pipelined mode the number of ADC clocks required for a conversion can vary between 15 and 16 ADC clocks.
- Work-Around :** none.
- Related Issues :** This issue does not affect the performance of the ADC.
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832_S02. DAC CLEAR BIT FUNCTIONALITY

- Background:** The DAC outputs are controlled by the SFR DACCON. The CLR1 and CLR0 bits in DACCON can be used to force the output of DAC1 and DAC0 to 0V.
- Issue:** When the DAC is enabled and in buffered mode setting the CLR1 or CLR0 bits may cause a momentary spike on the DAC output before the DAC is forced to 0V.
- Work-Around :** To force the output of DAC1 or DAC0 to 0V write 0000H to the corresponding DAC data registers.
- Related Issues :** none.
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832_S03. EXTENDED (11-BIT) STACK POINTER - PUSH AND POP OPERATION

Background:

The ADuC832 offers an extended (11-bit) stack pointer that allows the stack to extend into the 2 KBytes of internal XRAM. This can be very useful where embedded functions are used.

Issue:

If the extended stack pointer is enabled (CFG832.7=1) and the stack points to the extended stack space (SPH>=1) the the *PUSH direct* or *POP direct* instructions will not operate correctly if the direct address is less than 80H (i.e. not an SFR)

Work-Around :

Assembly Programming:

By using the Accumulator the extended stack works correctly. e.g.

```
To PUSH:MOV  A,0      To POP:POP  ACC
                PUSH  ACC                MOV  0,A
```

C Programming (KEIL Compier):

The KEIL Compiler only ever pushes (or pops) and SFR or any of the 32 registers (4 banks of 8 registers) onto the stack. Keil support a compiler directive that disables absolute register addressing (#pragma NOAREGS). Using this directive a PUSH/POP register will be automatically changed as above.

```
#pragma NOAREGS
int  increment(int);

void  main(void)
{
  int  a,b,c;

  a=5;
  b=6;
  c=increment(a)+increment(b);

  while(1);
}

int  increment(int  a)
{
  return(a+1);
}
```

Related Issues :

none.