

Errata Sheet

IC ID:

IRMCK312
IRMCK311
IRMCK343
IRMCK341
IRMCK371

Revision History:

10/10/08 – Initial Release

Case no. 1

Symptom:

Analog Op Amp for current sensing has oscillatory behavior when configured with proper feedback resistors.

Source of problem:

Impedance of internal layout for supplies.

Workaround:

Put a 47pF capacitor on between the op amp output and ground to eliminate the oscillation. A smaller value may work in some cases but the severity of the oscillation problem varies across production lots.

Case no. 2

Symptom:

The execution of the following particular consecutive 8051 instructions, which access the external RAM, does not perform correctly: the contents of RAM may be different than expected.

```
MOVX    @DPTR,A
MOVX    A,@DPTR
```

The following is an example of application code written in C which can result in this problem:

```
Tx_data[0]=value
Tx_data[1]=Tx_data[0]
```

Where, TX_data[] is a array variable to store UART transmit data.
The uVision C compiler, with level 3 optimization, produces the following assembly code:

```
18:          txd_data[0]=rxdata[0]|0x80;
C:0x0660  90F945  MOV    DPTR,#rxdata(0xF945)
C:0x0663  E0      MOVX  A,@DPTR
C:0x0664  4480    ORL   A,#P0(0x80)
C:0x0666  90F94A  MOV    DPTR,#txdata(0xF94A)
C:0x0669  F0      MOVX  @DPTR,A
```

```
19:          txd_data[1]=txdata[0];
C:0x066A  E0      MOVX  A,@DPTR
C:0x066B  A3     INC   DPTR
C:0x066C  F0     MOVX  @DPTR,A
```

Here we can see that the highlighted consecutive instructions match the problem definition.

Source of problem:

When a RAM location (pointed to by DPTR above) is written (MOVX @DPTR,A), the data is not ready to be read back (MOVX A,@DPTR) in the next instruction cycle. This delay is due to the separate clock domains of the MCE and 8051 processors during memory access.

Workaround:

- 1) Insert a NOP instruction between the consecutive instructions, MOVX @DPTR,A and MOVX A,@DPTR to generate correct operation. Details on how to place assembly code in a C program can be found at:
http://www.keil.com/support/man/docs/c51/c51_asm.htm
If the user wants that the C compiler to take care of this problem, then he/she may need to choose a different optimization level at a compilation.
- 2) Avoid C programming code which immediately accesses a data variable or array component right after it has been written.