Freescale Semiconductor

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Application Note

Getting Started with Interrupts on the MC68302

This note describes a simple program that initializes the MC68302 and configures interrupts to occur from two timers. The code may be easily entered by hand in about 3 minutes, and run on the ADS302 board. It could also be run on a target system. The code gives the user a framework from which to begin writing interrupt routines, trying out the 302bug break points, and single-step features.

How to Enter and Run the Code

If you have an ADS302 board, you can input the code using the single line assembler of the 302bug monitor/debugger that is resident on the board. This would be done as:

```
mm 30008;di
MOVE.W #$700,($F2).L
MOVE.W #$8040,($700812).L
etc.
. (to end the memory modify)
```

Then when this is complete the program may be started with one of the following:

```
g 30008        # run full speed
t  30008        # single-step mode
```

Also try setting break points in the code like:

```
br 30100
```

General Notes

Why is Timer 1 initialized, but not Timer 3 (the Watchdog Timer)? Because Timer 3 is enabled at startup for a timout of 16 seconds.

Why does Timer 3 not reset the part when it expires? Because the WDOG* pin is not connected to anything on the ADS302 board. However, it can generate a level 4 interrupt.

On the ADS302 board any location for the code between $4000 and $80000 would be acceptable. However, the $30000 area was chosen because it does not conflict with the User I/F software (with the command "g 210000") which the user may wish to start up. Remember that most registers may be reinitialized if you do this. So why bother? Well if you are using an ADI board and a host computer, you can save this program by starting up the "history record" option, and using the "modify memory" command to scroll through the program data. (The data does not have to be re-entered, just returns given).

A more complete discussion of interrupt handlers is given in the note "MC68302 Buffer Processing and Interrupt Handling."