

ADC Readback Code

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INTRODUCTION

The ADM1062/ADM1063/ADM1064/ADM1066/ADM1069 family of fully programmable supply sequencers and supervisors can be used as complete supply management solutions in systems with multiple voltage supplies.

These devices all feature an on-chip 12-bit ADC. The ADCs can be set up to read a single result or to continuously read the selected channels. Averaging is provided for each channel and can be either enabled (on) or disabled (off).

This application note provides the steps to set up and read from the ADCs for a single result (with averaging on or off). It also provides the steps to read continuously from the ADCs (with averaging on or off). For the purposes of this application note, VH is used as an example in the sets of instructions provided.

For information on the features and functions of the ADM1062/ADM1063/ADM1064/ADM1066/ADM1069 devices, refer to the relevant data sheet. The data sheets can be downloaded from www.analog.com.

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SINGLE READ (AVERAGING OFF)

- Set up Register 0x80 and Register 0x81 (RRSEL1 and RRSEL2, respectively). These registers are used to select the channels you want to monitor.
0 = Channel selected
1 = Channel not selected
For example, to select VH, write:
0xEF to Register 0x80 and 0x1F to Register 0x81
- Set the GO bit by writing 0x01 to Register 0x82 (RRCTL).
GO = 1
ENABLE = 0
AVERAGE = 0
STOPWRITE = 0
CLEARLIM = 0
- Enter a loop with a timeout and continuously read the data from Register 0x82 (RRCTL).
 - If Register 0x82 = 0x00, then exit the loop (the GO bit has been reset).
 - If Register 0x82 ≠ 0x00, then continue around the loop.
- If the GO bit has been reset, write 0x08 to Register 0x82 (RRCTL).
GO = 0
ENABLE = 0
AVERAGE = 0
STOPWRITE = 1
CLEARLIM = 0
- Read the registers associated with VH.
0xA8 (ADCHVH)
0xA9 (ADCLVH)
- Reset the STOPWRITE bit. Write 0x00 to Register 0x82.
GO = 0
ENABLE = 0
AVERAGE = 0
STOPWRITE = 0
CLEARLIM = 0

SINGLE READ (AVERAGING ON)

- Set up Register 0x80 and Register 0x81 (RRSEL1 and RRSEL2, respectively). These registers are used to select the channels you want to monitor.
0 = Channel selected
1 = Channel not selected
For example, to select VH, write:
0xEF to Register 0x80 and 0x1F to Register 0x81.
- Set Register 0x82 (RRCTL) to 0x05.
GO = 1
ENABLE = 0
AVERAGE = 1
STOPWRITE = 0
CLEARLIM = 0
- Enter a loop with a timeout and continuously read the data from Register 0x82 (RRCTL).
 - If Register 0x82 = 0x04, then exit the loop (the GO bit has been reset).
 - If Register 0x82 ≠ 0x04, continue around the loop.
- If the GO bit has been reset, write 0x0C to Register 0x82 (RRCTL).
GO = 0
ENABLE = 0
AVERAGE = 1
STOPWRITE = 1
CLEARLIM = 0
- Read the registers associated with VH.
0xA8 (ADCHVH)
0xA9 (ADCLVH)
- Reset the STOPWRITE bit. Write 0x04 to Register 0x82.
GO = 0
ENABLE = 0
AVERAGE = 1
STOPWRITE = 0
CLEARLIM = 0

CONTINUOUS READ (AVERAGING OFF)

1. Set up Register 0x80 and Register 0x81 (RRSEL1 and RRSEL2, respectively). These registers are used to select the channels you want to monitor.

0 = Channel selected

1 = Channel not selected

For example, to select VH, write:

0xEF to Register 0x80 and 0x1F to Register 0x81

2. Write 0x02 to Register 0x82 (RRCTL).

GO = 0

ENABLE = 1

AVERAGE = 0

STOPWRITE = 0

CLEARLIM = 0

3. Write 0x0A to Register 0x82 (RRCTL).

GO = 0

ENABLE = 1

AVERAGE = 0

STOPWRITE = 1

CLEARLIM = 0

4. Read the registers associated with VH.

Register 0xA8 (ADCHVH)

Register 0xA9 (ADCLVH)

5. Write 0x02 to Register 0x82 (RRCTL).

GO = 0

ENABLE = 1

AVERAGE = 0

STOPWRITE = 0

CLEARLIM = 0

CONTINUOUS READ (AVERAGING ON)

1. Setup Register 0x80 and Register 0x81 (RRSEL1 and RRSEL2, respectively). These registers are used to select the channels you want to monitor.

0 = Channel selected

1 = Channel not selected

For example, to select VH, write:

0xEF to Register 0x80 and 0x1F to Register 0x81.

2. Write 0x06 to Register 0x82 (RRCTL).

GO = 0

ENABLE = 1

AVERAGE = 1

STOPWRITE = 0

CLEARLIM = 0

3. Write 0x0E to Register 0x82 (RRCTL).

GO = 0

ENABLE = 1

AVERAGE = 1

STOPWRITE = 1

CLEARLIM = 0

4. Read the registers associated with VH.

0xA8 (ADCHVH)

0xA9 (ADCLVH)

5. Write 0x06 to Register 0x82 (RRCTL).

GO = 0

ENABLE = 1

AVERAGE = 1

STOPWRITE = 0

CLEARLIM = 0