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ADT7463 Configurations
by Mary Burke

INTRODUCTION

This document is intended as a supplement to the ADT7463 data sheet. Since many of the pins on the ADT7463 are multifunctional, there are many possible configurations of the ADT7463. The purpose of this document is to describe all the possible options and their configuration register settings.

RECOMMENDED IMPLEMENTATION

Configuring the ADT7463 as in Figure 2 provides the systems designer with the following features:

1. Six VID Inputs (VID0 to VID5) for VRM10 Support.
2. Two PWM Outputs for Fan Control of up to Three Fans (the front and rear chassis fans are connected in parallel).
3. Three TACH Fan Speed Measurement Inputs.

4. V_{CC} Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (V_{CORE}).
6. 2.5 V Measurement Input Used to Monitor CPU Current (connected to V_{COMP} output of ADP316x VRM controller). This is used to determine CPU power consumption.
7. 5 V Measurement Input.
8. VRM temperature uses local temperature sensor.
9. CPU Temperature Measured Using Remote 1 Temperature Channel.
10. Ambient Temperature Measured through Remote 2 Temperature Channel.
11. If not using VID5, this pin can be reconfigured as the +12 V monitoring input.
12. Bidirectional $\overline{\text{THERM}}$ Pin. Allows Intel® Pentium 4® $\overline{\text{PROCHOT}}$ monitoring and can function as an overtemperature $\overline{\text{THERM}}$ output.
13. $\overline{\text{SMBALERT}}$ System Interrupt Output.
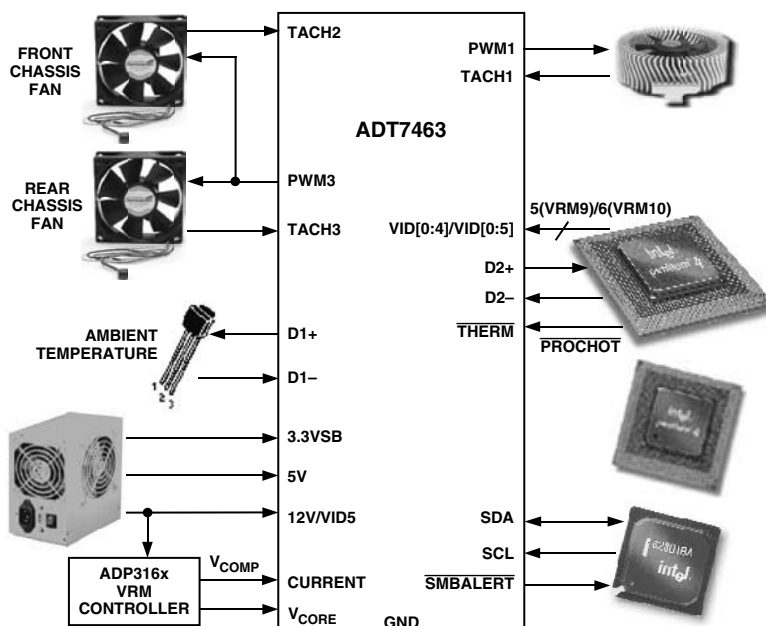
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CONFIGURATION OPTION 1

Configuring the ADT7463 as in Figure 2 provides the systems designer with the following features:

1. Six VID Inputs (VID0 to VID5) for VRM10 Support. Enabling VID5 also enables the VID code change detect feature.
2. Three PWM Outputs for Fan Control of up to Four Fans (PWM1 to PWM3).
3. Four TACH Fan Speed Measurement Inputs.
4. V_{CC} Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (V_{CCP}).
6. $\overline{\text{SMBALERT}}$ Interrupt Output.
7. Bidirectional $\overline{\text{THERM}}$ Pin. Allows P4 $\overline{\text{PROCHOT}}$ monitoring and can function as an overtemperature $\overline{\text{THERM}}$ output.
8. Two Remote Diode Temperature Measurements.

SDA	1		24	PWM1/XTO
SCL	2		23	V_{CCP}
GND	3		22	$\overline{\text{SMBALERT}}$
V_{CC}	4	ADT7463	21	VID5
VID0	5	TOP VIEW	20	$\overline{\text{THERM}}$
VID1	6	(Not to Scale)	19	VID4
VID2	7		18	D1+
VID3	8		17	D1–
TACH3	9		16	D2+
PWM2	10		15	D2–
TACH1	11		14	TACH4/ADDRESS SELECT
TACH2	12		13	PWM3/ADDRESS ENABLE
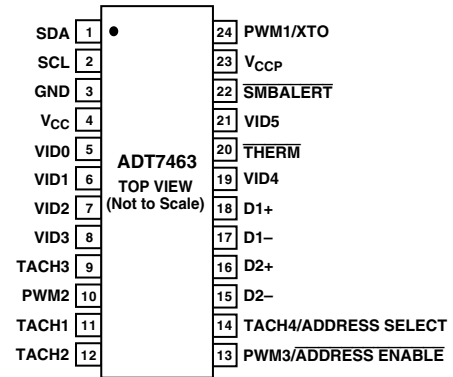
Figure 2. Recommended Pinout Option

CONFIGURING THE ADT7463 FOR CONFIGURATION 1

The following bits need to be configured for the recommended pinout:

Register	Bit Setting	Function Selected
VID Register (0x43)	<7> VIDSEL = 1	Configures Pin 21 as the VID5 input
Configuration Register 4 (0x7D)	<0> AL2.5V = 1	Configures Pin 22 as the $\overline{\text{SMBALERT}}$ output
Configuration Register 3 (0x78)	<1> Therm Timer = 1	Enables the $\overline{\text{THERM}}$ monitoring function
Configuration Register 4 (0x7D)	<1> TH5V = 1	Configures Pin 20 as the bidirectional $\overline{\text{THERM}}$ pin

CONFIGURATION OPTION 2

Configuring the ADT7463 as in Figure 3 provides the systems designer with the following features:

1. Five VID Inputs (VID0 to VID4) for VRM9.x Support.
2. Two PWM Outputs for Fan Control (PWM1 and PWM3).
3. Three TACH Fan Speed Measurement Inputs.
4. V_{CC} Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (V_{CCP}).
6. 2.5 V Measurement Input.
7. 12 V Measurement Input.
8. 5 V Measurement Input.
9. Two Remote Diode Temperature Measurements.
10. $\overline{\text{SMBALERT}}$ Interrupt Output.
11. Bidirectional $\overline{\text{THERM}}$ Pin. Allows Intel P4 $\overline{\text{PROCHOT}}$ monitoring and can function as an overtemperature $\overline{\text{THERM}}$ output.

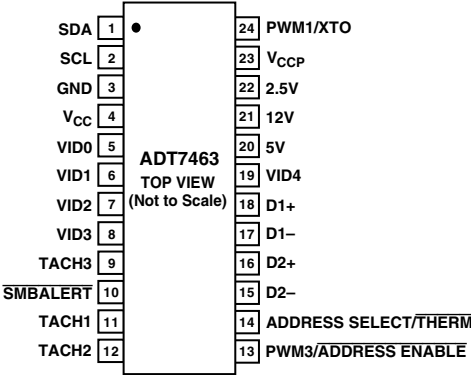|		
SDA	1	24	PWM1/XTO
SCL	2	23	V_{CCP}
GND	3	22	2.5V
V_{CC}	4	21	12V
VID0	5	20	5V
VID1	6	19	VID4
VID2	7	18	D1+
VID3	8	17	D1–
TACH3	9	16	D2+
$\overline{\text{SMBALERT}}$	10	15	D2–
TACH1	11	14	ADDRESS SELECT/$\overline{\text{THERM}}$
TACH2	12	13	PWM3/ADDRESS ENABLE

ADT7463 TOP VIEW (Not to Scale)

Figure 3. Pinout Option 2

CONFIGURING THE ADT7463 FOR PINOUT OPTION 2

The following bits need to be configured for Pinout Option 2:

Register	Bit Setting	Function Selected
VID Register (0x43)	<7> VIDSEL = 0	Configures Pin 21 as the 12 V input
Configuration Register 3 (0x78)	<0> ALERT = 1	Configures Pin 10 as $\overline{\text{SMBALERT}}$ output
Configuration Register 3 (0x78)	<1> Therm Timer = 1	Enables $\overline{\text{THERM}}$ monitoring on Pin 14
Configuration Register 4 (0x7D)	<0> AL2.5V = 0	Configures Pin 22 as 2.5 V input
Configuration Register 4 (0x7D)	<1> TH5V = 0	Configures Pin 20 as 5 V input

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CONFIGURATION OPTION 3

Configuring the ADT7463 as in Figure 4 provides the systems designer with the following features:

1. Five VID Inputs (VID0 to VID4) for VRM9.x Support.
2. Three PWM Outputs for Fan Control of up to Four Fans (PWM1 to PWM3).
3. Four TACH Fan Speed Measurement Inputs.
4. V_{CC} Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (V_{CCP}).
6. 2.5 V Measurement Input.
7. 12 V Measurement Input.
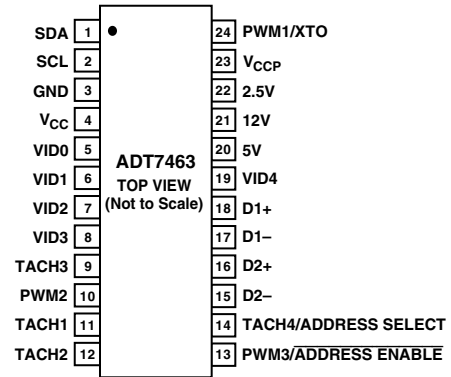8. 5 V Measurement Input.
9. Two Remote Diode Temperature Measurements.

```
         SDA  1  •           24  PWM1/XTO
         SCL  2               23  V_CCP
         GND  3               22  2.5V
         V_CC 4               21  12V
         VID0 5    ADT7463    20  5V
         VID1 6    TOP VIEW   19  VID4
         VID2 7  (Not to Scale) 18  D1+
         VID3 8               17  D1–
        TACH3 9               16  D2+
         PWM2 10              15  D2–
        TACH1 11              14  TACH4/ADDRESS SELECT
        TACH2 12              13  PWM3/ADDRESS ENABLE
```
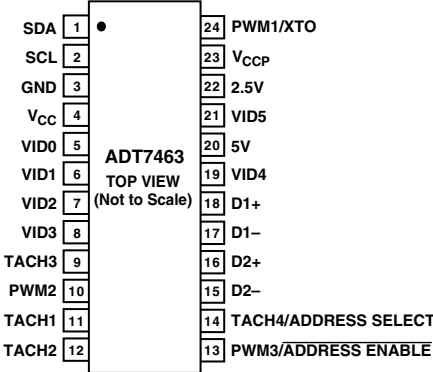
Figure 4. Pinout Option 3

CONFIGURING THE ADT7463 FOR PINOUT OPTION 3

The following bits need to be configured for Pinout Option 3:

Register	Bit Setting	Function Selected
VID Register (0x43)	<7> VIDSEL = 0	Configures Pin 21 as the 12 V input
Configuration Register 4 (0x7D)	<0> AL2.5V = 0	Configures Pin 22 as 2.5 V input
Configuration Register 4 (0x7D)	<1> TH5V = 0	Configures Pin 20 as 5 V input

CONFIGURATION OPTION 4

Configuring the ADT7463 as in Figure 5 provides the systems designer with the following features:

1. Six VID Inputs (VID0 to VID5) for VRM10 Support. Enabling VID5 also enables the VID code change detect feature.
2. Three PWM Outputs for Fan Control of up to Four Fans (PWM1 to PWM3).
3. Four TACH Fan Speed Measurement Inputs.
4. V_{CC} Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (V_{CCP}).
6. 2.5 V Measurement Input.
7. 5 V Measurement Input.
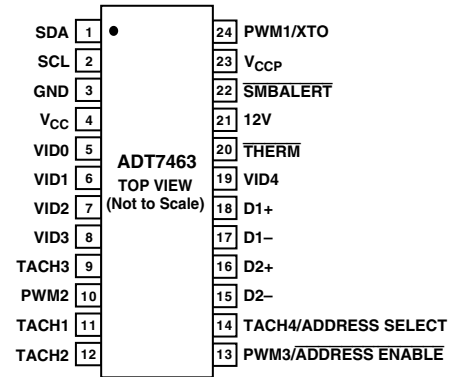8. Two Remote Diode Temperature Measurements.

Figure 5. Pinout Option 4

CONFIGURING THE ADT7463 FOR PINOUT OPTION 4

The following bits need to be configured for Pinout Option 4:

Register	Bit Setting	Function Selected
VID Register (0x43)	<7> VIDSEL = 1	Configures Pin 21 as the VID5 input
Configuration Register 4 (0x7D)	<0> AL2.5V = 0	Configures Pin 22 as 2.5 V input
Configuration Register 4 (0x7D)	<1> TH5V = 0	Configures Pin 20 as 5 V input

CONFIGURATION OPTION 5

Configuring the ADT7463 as in Figure 6 provides the systems designer with the following features:

1. Five VID Inputs (VID0 to VID4) for VRM9.x Support.
2. Three PWM Outputs for Fan Control of up to Four Fans (PWM1 to PWM3).
3. Four TACH Fan Speed Measurement Inputs.
4. V_{CC} Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (V_{CCP}).
6. Two Remote Diode Temperature Measurements
7. 12 V Measurement Input.
8. $\overline{SMBALERT}$ Interrupt Output.
9. Bidirectional $\overline{THERM}$ Pin. Allows Intel P4 $\overline{PROCHOT}$ monitoring and can function as an overtemperature $\overline{THERM}$ output.

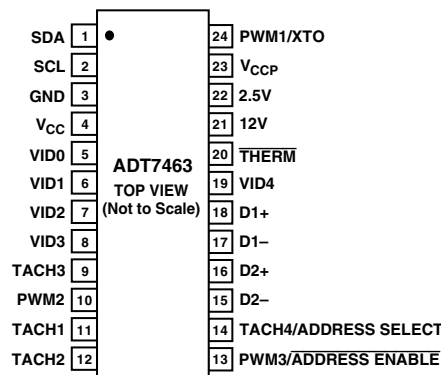|	
SDA 1	24 PWM1/XTO
SCL 2	23 V_{CCP}
GND 3	22 $\overline{SMBALERT}$
V_{CC} 4	21 12V
VID0 5	20 $\overline{THERM}$
VID1 6	19 VID4
VID2 7	18 D1+
VID3 8	17 D1–
TACH3 9	16 D2+
PWM2 10	15 D2–
TACH1 11	14 TACH4/ADDRESS SELECT
TACH2 12	13 PWM3/$\overline{ADDRESS\ ENABLE}$

ADT7463 TOP VIEW (Not to Scale)

Figure 6. Pinout Option 5

CONFIGURING THE ADT7463 FOR PINOUT OPTION 5

The following bits need to be configured for Pinout Option 5:

Register	Bit Setting	Function Selected
VID Register (0x43)	<7> VIDSEL = 0	Configures Pin 21 as the 12 V input
Configuration Register 3 (0x78)	<0> ALERT = 0	Configures Pin 10 as PWM2 output
Configuration Register 4 (0x7D)	<0> AL2.5V = 1	Configures Pin 22 as $\overline{SMBALERT}$ output
Configuration Register 3 (0x78)	<1> Therm Timer = 1	Enables $\overline{THERM}$ monitoring
Configuration Register 4 (0x7D)	<1> TH5V = 1	Configures Pin 20 as $\overline{THERM}$ output

CONFIGURATION OPTION 6

Configuring the ADT7463 as in Figure 7 provides the systems designer with the following features:

1. Five VID Inputs (VID0 to VID4) for VRM9.x Support.
2. Three PWM Outputs for Fan Control of up to Four Fans (PWM1 to PWM3).
3. Four TACH Fan Speed Measurement Inputs.
4. V_{CC} Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (V_{CCP}).
6. 2.5 V Measurement Input.
7. 12 V Measurement Input.
8. Bidirectional $\overline{\text{THERM}}$ Pin. Allows P4 $\overline{\text{PROCHOT}}$ monitoring and can function as an overtemperature $\overline{\text{THERM}}$ output.
9. Two Remote Diode Temperature Measurements.

SDA	1	24 PWM1/XTO
SCL	2	23 V$_{CCP}$
GND	3	22 2.5V
V$_{CC}$	4	21 12V
VID0	5	20 THERM
VID1	6	19 VID4
VID2	7	18 D1+
VID3	8	17 D1–
TACH3	9	16 D2+
PWM2	10	15 D2–
TACH1	11	14 TACH4/ADDRESS SELECT
TACH2	12	13 PWM3/ADDRESS ENABLE

ADT7463 TOP VIEW (Not to Scale)

Figure 7. Pinout Option 6

CONFIGURING THE ADT7463 FOR PINOUT OPTION 6

The following bits need to be configured for Pinout Option 6:

Register	Bit Setting	Function Selected
VID Register (0x43)	<7> VIDSEL = 0	Configures Pin 21 as the 12 V input
Configuration Register 4 (0x7D)	<0> AL2.5V = 0	Configures Pin 22 as the 2.5 V input
Configuration Register 3 (0x78)	<1> Therm Timer = 1	Enables $\overline{\text{THERM}}$ monitoring
Configuration Register 4 (0x7D)	<1> TH5V = 1	Configures Pin 20 as the bidirectional $\overline{\text{THERM}}$ pin