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).
4. VCC Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (Vcore).
6. 2.5 V Measurement Input Used to Monitor CPU Current (connected to Vcomp 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 THERM Pin. Allows Intel® Pentium 4® PROCHOT monitoring and can function as an over-temperature THERM output.
13. SMBALERT System Interrupt Output.

Figure 1. Recommended Implementation
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. SMBALERT Interrupt Output.
7. Bidirectional THERM Pin. Allows P4 PROCHOT monitoring and can function as an overtemperature THERM output.
8. Two Remote Diode Temperature Measurements.

CONFIGURING THE ADT7463 FOR CONFIGURATION 1
The following bits need to be configured for the recommended pinout:

<table>
<thead>
<tr>
<th>Register</th>
<th>Bit Setting</th>
<th>Function Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>VID Register (0x43)</td>
<td>&lt;7&gt; VIDSEL = 1</td>
<td>Configures Pin 21 as the VID5 input</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;0&gt; AL2.5V = 1</td>
<td>Configures Pin 22 as the SMBALERT output</td>
</tr>
<tr>
<td>Configuration Register 3 (0x78)</td>
<td>&lt;1&gt; ThermTimer = 1</td>
<td>Enables the THERM monitoring function</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;1&gt; TH5V = 1</td>
<td>Configures Pin 20 as the bidirectional THERM pin</td>
</tr>
</tbody>
</table>
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).
4. VCC Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (VCCP).
6. 2.5 V Measurement Input.
7. 12 V Measurement Input.
8. 5 V Measurement Input.
10. SMBALERT Interrupt Output.
11. Bidirectional THERM Pin. Allows Intel P4 PROCHOT monitoring and can function as an overtemperature THERM output.

CONFIGURING THE ADT7463 FOR PINOUT OPTION 2
The following bits need to be configured for Pinout Option 2:

<table>
<thead>
<tr>
<th>Register</th>
<th>Bit Setting</th>
<th>Function Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>VID Register (0x43)</td>
<td>&lt;7&gt; VIDSEL = 0</td>
<td>Configures Pin 21 as the 12 V input</td>
</tr>
<tr>
<td>Configuration Register 3 (0x78)</td>
<td>&lt;0&gt; ALERT = 1</td>
<td>Configures Pin 10 as SMBALERT output</td>
</tr>
<tr>
<td>Configuration Register 3 (0x78)</td>
<td>&lt;1&gt; Therm Timer = 1</td>
<td>Enables THERM monitoring on Pin 14</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;0&gt; AL2.5V = 0</td>
<td>Configures Pin 22 as 2.5 V input</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;1&gt; TH5V = 0</td>
<td>Configures Pin 20 as 5 V input</td>
</tr>
</tbody>
</table>
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.

CONFIGURING THE ADT7463 FOR PINOUT OPTION 3
The following bits need to be configured for Pinout Option 3:

<table>
<thead>
<tr>
<th>Register</th>
<th>Bit Setting</th>
<th>Function Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>VID Register (0x43)</td>
<td>&lt;7&gt; VIDSEL = 0</td>
<td>Configures Pin 21 as the 12 V input</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;0&gt; AL2.5V = 0</td>
<td>Configures Pin 22 as 2.5 V input</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;1&gt; TH5V = 0</td>
<td>Configures Pin 20 as 5 V input</td>
</tr>
</tbody>
</table>

Figure 4. Pinout Option 3
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\textsubscript{CC} Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (V\textsubscript{CCP}).
6. 2.5 V Measurement Input.
7. 5 V Measurement Input.
8. Two Remote Diode Temperature Measurements.

CONFIGURING THE ADT7463 FOR PINOUT OPTION 4

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

<table>
<thead>
<tr>
<th>Register</th>
<th>Bit Setting</th>
<th>Function Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>VID Register (0x43)</td>
<td>&lt;7&gt; VIDSEL = 1</td>
<td>Configures Pin 21 as the VID5 input</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;0&gt; AL2.5V = 0</td>
<td>Configures Pin 22 as 2.5 V input</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;1&gt; TH5V = 0</td>
<td>Configures Pin 20 as 5 V input</td>
</tr>
</tbody>
</table>
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. SMBALERT Interrupt Output.

CONFIGURING THE ADT7463 FOR PINOUT OPTION 5
The following bits need to be configured for Pinout Option 5:

<table>
<thead>
<tr>
<th>Register</th>
<th>Bit Setting</th>
<th>Function Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>VID Register (0x43)</td>
<td>&lt;7&gt; VIDSEL = 0</td>
<td>Configures Pin 21 as the 12 V input</td>
</tr>
<tr>
<td>Configuration Register 3 (0x78)</td>
<td>&lt;0&gt; ALERT = 0</td>
<td>Configures Pin 10 as PWM2 output</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;0&gt; AL2.5V = 1</td>
<td>Configures Pin 22 as SMBALERT output</td>
</tr>
<tr>
<td>Configuration Register 3 (0x78)</td>
<td>&lt;1&gt; Therm Timer = 1</td>
<td>Enables THERM monitoring</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;1&gt; TH5V = 1</td>
<td>Configures Pin 20 as THERM output</td>
</tr>
</tbody>
</table>
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. VCC Measured Internally through Pin 4.
5. CPU Core Voltage Measurement (VCCP).
6. 2.5 V Measurement Input.
7. 12 V Measurement Input.
8. Bidirectional THERM Pin. Allows P4 PROCHOT monitoring and can function as an overtemperature THERM output.

FIGURE 7. PINOUT OPTION 6

CONFIGURING THE ADT7463 FOR PINOUT OPTION 6
The following bits need to be configured for Pinout Option 6:

<table>
<thead>
<tr>
<th>Register</th>
<th>Bit Setting</th>
<th>Function Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>VID Register (0x43)</td>
<td>&lt;7&gt; VIDSEL = 0</td>
<td>Configures Pin 21 as the 12 V input</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;0&gt; AL2.5V = 0</td>
<td>Configures Pin 22 as the 2.5 V input</td>
</tr>
<tr>
<td>Configuration Register 3 (0x78)</td>
<td>&lt;1&gt; Therm Timer = 1</td>
<td>Enables THERM monitoring</td>
</tr>
<tr>
<td>Configuration Register 4 (0x7D)</td>
<td>&lt;1&gt; TH5V = 1</td>
<td>Configures Pin 20 as the bidirectional THERM pin</td>
</tr>
</tbody>
</table>