ANALOG DEVICES

Evaluation Kit for Communications System Supervisory/Sequencing Circuit

Preliminary Technical Data | EVAL-ADM1060

FEATURES
Faults detected on 7 independent supplies
- **1 High Voltage supply (up to 14.4V)**
- **4 Positive Voltage Only Supplies (up to 6V)**
- **2 Positive/Negative Voltage supplies (up to +6V OR down to -6V)**

Watchdog Detector Input - Timeout delay programmable from 200ms to 12.8sec
4 General Purpose Logic Inputs
Programmable Logic Block - combinatorial and sequencing logic control of all inputs and outputs
9 Programmable Output Drivers
- **Open Collector (external resistor required)**
- **Open Collector with internal pull-up to V_{DD}**
- **Fast Internal pull-up to V_{DD}**
- **Open Collector with internal pull-up to VPn**
- **Fast Internal pull-up to VPn**
- **Internally charge pumped high drive (for use with external N- channel FETS- PDO's 1 to 4 only)**

EEPROM - 512 Bytes
Industry Standard 2- Wire Bus Interface (SMBus)

APPLICATIONS
Central Office Systems
Servers
Infrastructure Network Boards
High density, multi- voltage system cards

INTRODUCTION
The ADM1060 Evaluation Kit allows the ADM1060 multi supply supervisor/sequencer to be quickly and easily evaluated using a personal computer. Using the evaluation board and its accompanying software, the ADM1060 can be interfaced to a personal computer running Windows[TM] 95/98/2000/NT/ME/XP, via the computer's parallel printer port.

The evaluation board allows all of the many input and output functions of the ADM1060 to be exercised without the need for external components. A number of external connections to the SMBus is provided so that an in- system ADM1060 can be programmed using the Evaluation Board. The software provided allows control and monitoring of the ADM1060's internal registers as well as controlling the peripheral circuits on the evaluation board which are provided to stimulate the many functions of the ADM1060.

THE ADM1060
The following gives a brief description of the ADM1060 and its different applications. Further information can be found in the data sheet for the device.

GENERAL DESCRIPTION
The ADM1060 is a programmable supervisory/sequencing device which offers a single chip solution for multiple power supply fault detection and sequencing in communications systems.

In central office, servers and other infrastructure systems, there are multiple dc supplies which are used to power different sections of boards (eg) 3.3V Logic circuits, 5V logic circuits, DSP core and I/O circuits etc. There is usually a requirement that certain sections power up before others (eg) a DSP core to power up before the DSP I/O or vice versa. This is in order to avoid damage, miscommunication or latch- up. The ADM1060 facilitates this, providing supply fault detection and sequencing/combinatorial logic for up to 7 independent supplies. All of the detectors can be programmed to detect undervoltage, overvoltage or out- of window (undervoltage OR overvoltage) conditions.

Other inputs to the ADM1060 include a Watchdog Detector (WDI) and 4 General Purpose Inputs (GPIn).

The ADM1060 features 9 Programmable Driver Outputs (PDO's). All 9 outputs can be configured to be logic outputs, which can provide multiple functions for the end user. PDO's 1- 4 have the added feature of being able to provide an internally charge pumped high voltage for use as the gate drive of an external N- Channel FET which could be placed in the path of one of the supplies being supervised.

All of the inputs and outputs described above are controlled by the Programmable Logic Block Array. This is the logic core of the ADM1060. It is comprised of 9 macrocells, one for each PDO. Any/all of the inputs can be used as an input to these macrocells. The PLBA outputs control the PDO's of the ADM1060 via delay blocks, where a delay of between 0 and 500ms can be programmed on the rising and/or the falling edge of the data.

All of the functional capability described here is programmable through the industry standard 2 wire bus (SMBus) provided.

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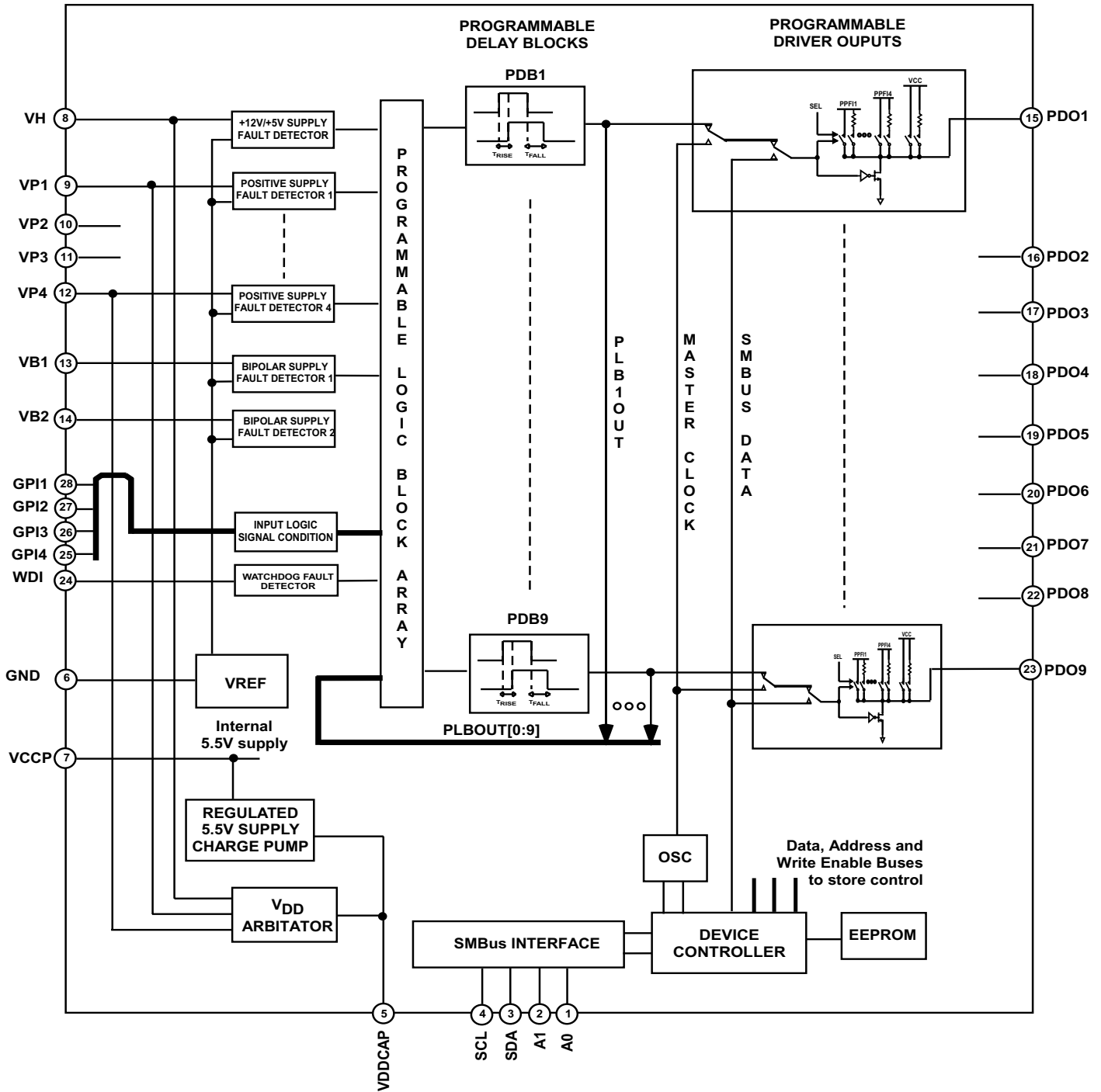
EVAL-ADM1060

Figure 1. ADM1060 FUNCTIONAL BLOCK DIAGRAM

ADM1060 EVALUATION BOARD HARDWARE

The ADM1060 evaluation board contains the following main components, which can be identified from the block diagram (below), the schematic diagram and the PCB silk screen overleaf

- ADM1060 IC (Socketed).
- 10 bit DAC's (AD5315) for applying test voltages to the ADM1060 Supply Fault Detector inputs.
- Op-Amps to provide gain stages for the DAC's above.
- 16 bit ADC's (AD7417) for measuring the ADM1060's Programmable Driver Outputs.
- Testpoints for all voltages generated on board.
- LED indicators for POWER, all 9 PDO's, Watchdog Timer Circuit and on- board test LDO.
- Mechanical Switches for connecting/disconnecting inputs/outputs to the ADM1060
- Connector for parallel interface
- Interface Buffers
- Connecters (2) for direct SMBus interafacing.
- Terminal power block connector and PCB mounted DC Power Socket for applying +15V to the Evaluation Board.
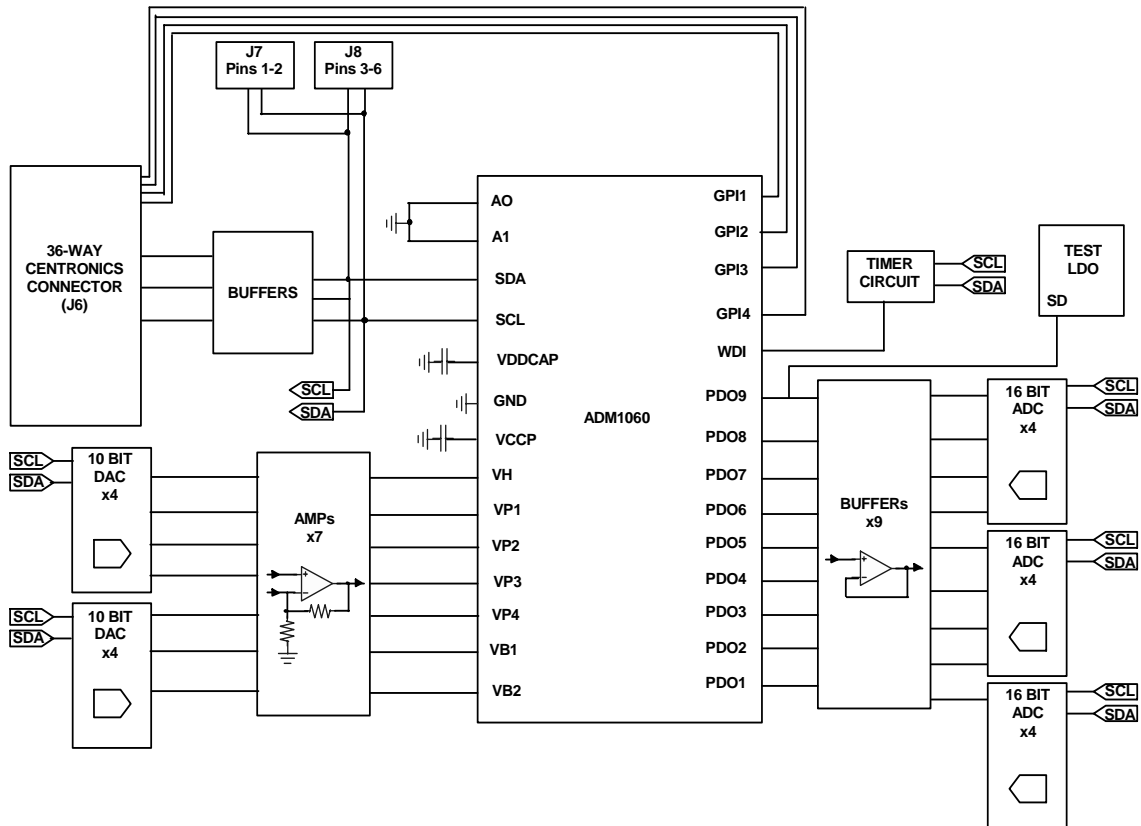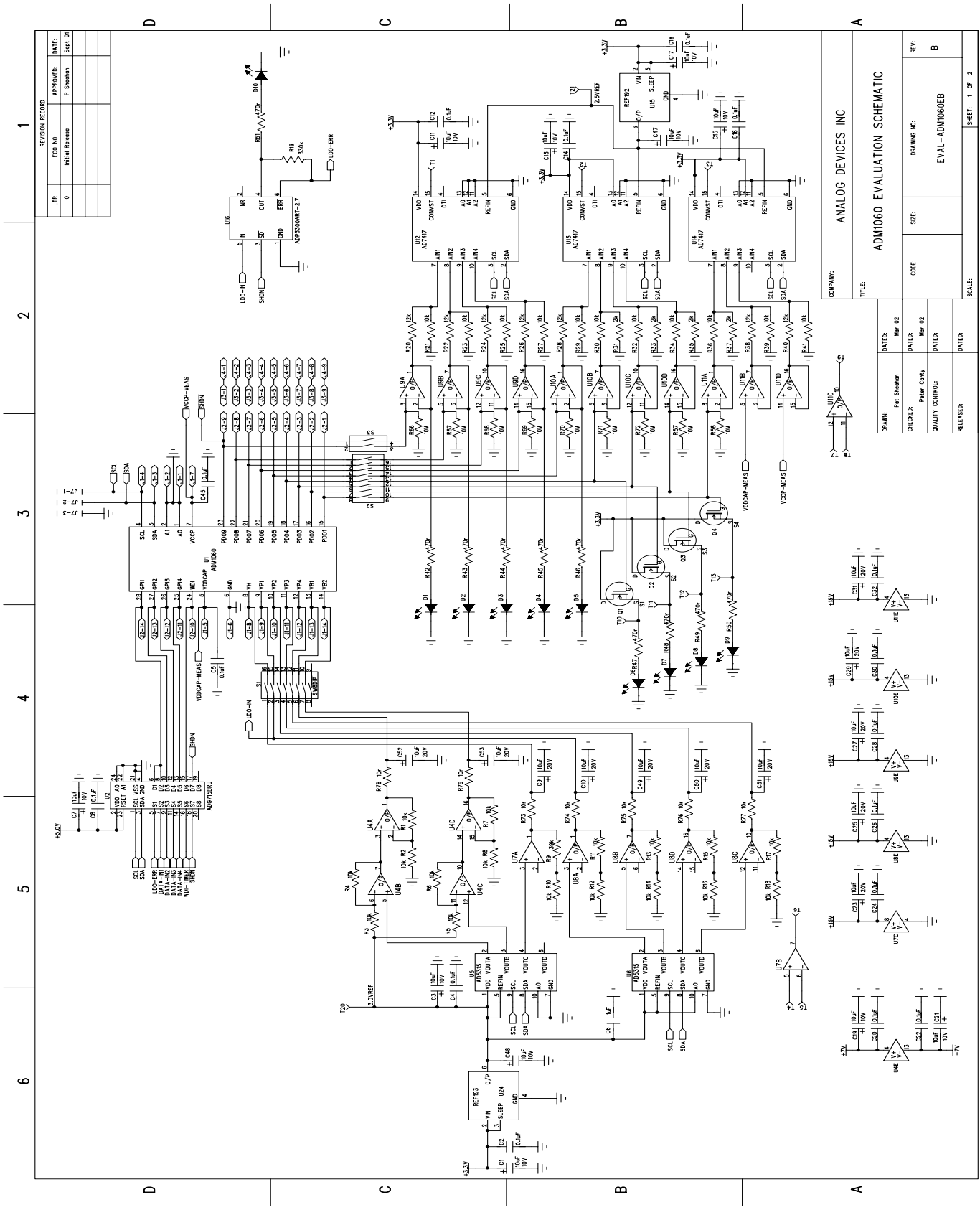

Figure 2. ADM1060 Evaluation Board Block Diagram

Figure 3. ADM1060   Evaluation Board Schematic

EVAL-ADM1060   PRELIMINARY TECHNICAL DATA
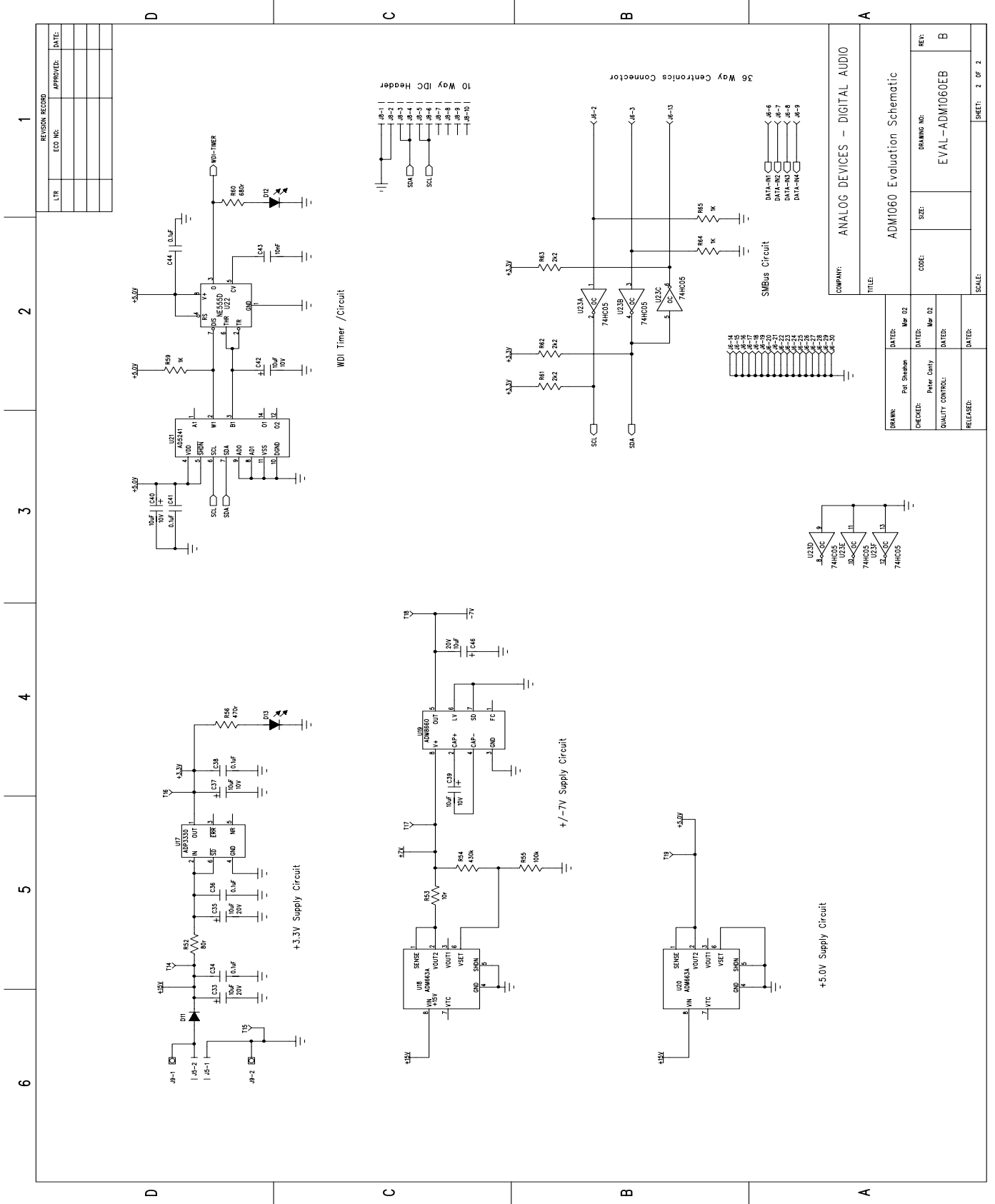
Figure 3. ADM1060 Evaluation Board Schematic (contd.)
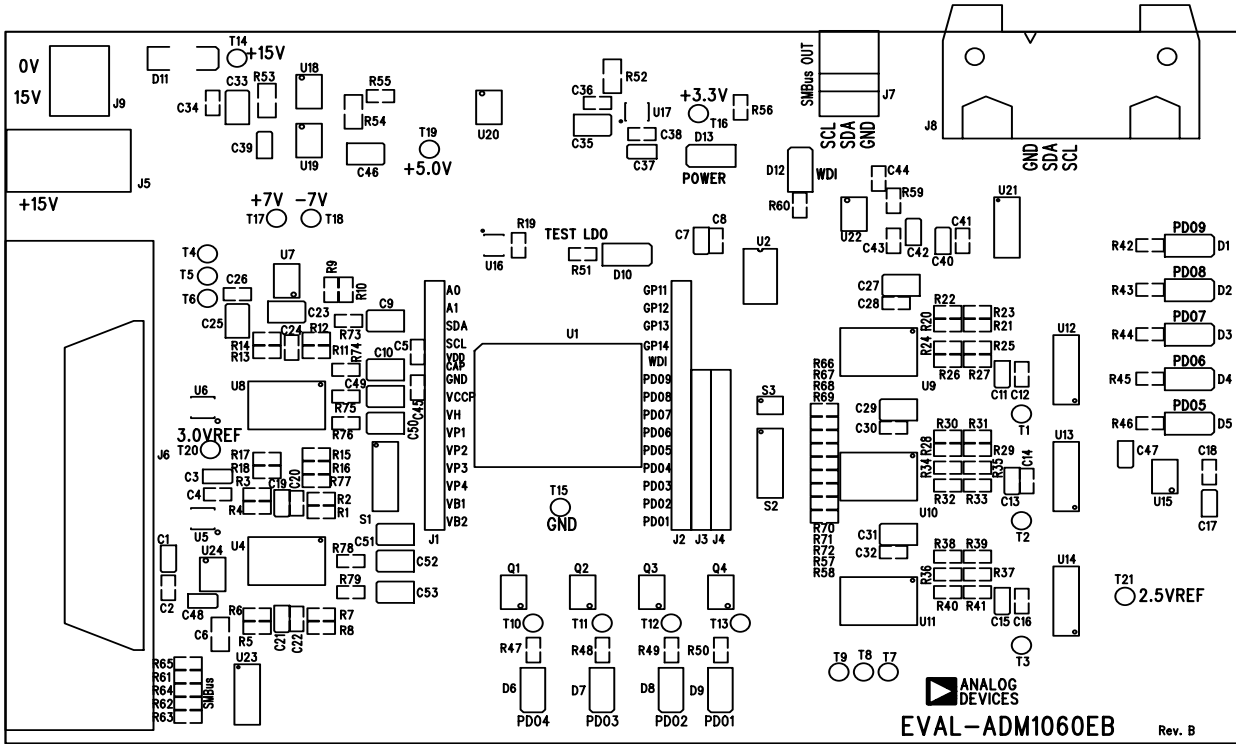
Figure 4. ADM1060 Evaluation Board Silkscreen
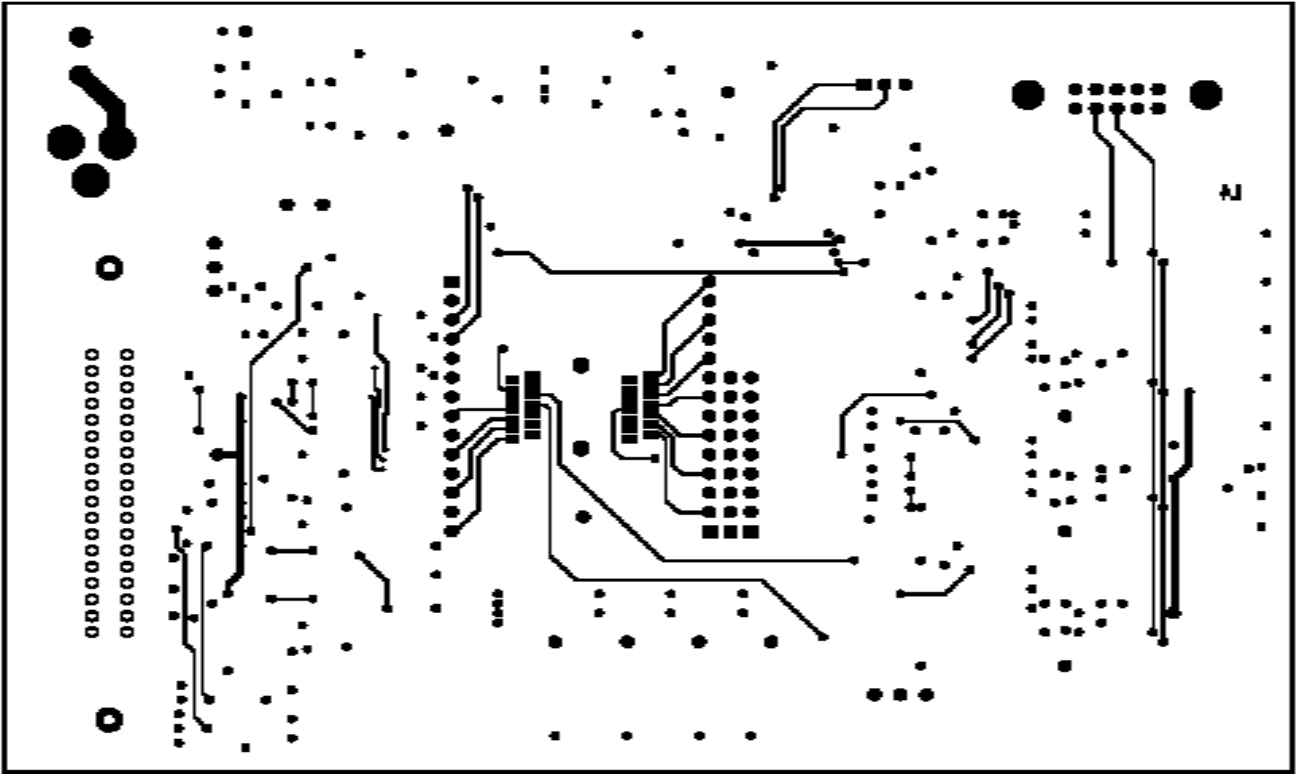
Figure 5. ADM1060   Evaluation Board Layout
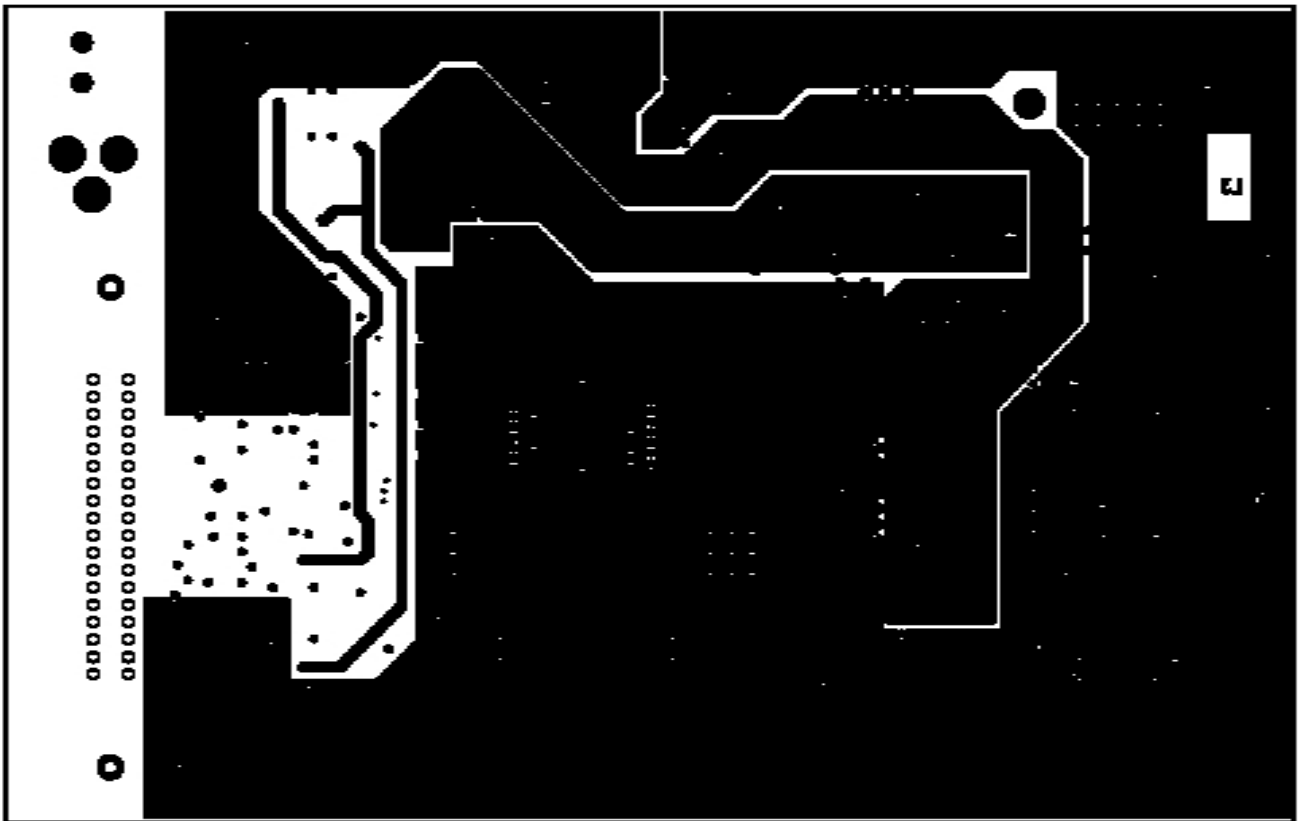
Figure 6. ADM1060   Evaluation Board Ground and Power Planes

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SWITCHES, INDICATORS AND CONNECTORS

The following describes the functions of the various switches, LED indicators, Testpoints and connectors on the ADM1060 Evaluation Board.

TABLE 1. SWITCH FUNCTIONS

Switch	Description	Position	Function	Default
S1				
S1-1	Connects programmable supply, VH_IN to VH (pin 8) on ADM1060	OPEN CLOSED	VH_IN disconnected from VH VH_IN connected to VH	Closed
S1-2	Connects programmable supply, VP1_IN to VP1 (pin 9) on ADM1060	OPEN CLOSED	VP1_IN disconnected from VP1 VP1_IN connected to VP1	Closed
S1-3	Connects programmable supply, VP2_IN to VP2 (pin 10) on ADM1060	OPEN CLOSED	VP2_IN disconnected from VP2 VP2_IN connected to VP2	Closed
S1-4	Connects programmable supply, VP3_IN to VP3 (pin 11) on ADM1060	OPEN CLOSED	VP3_IN disconnected from VP3 VP3_IN connected to VP3	Closed
S1-5	Connects programmable supply, VP4_IN to VP4 (pin 12) on ADM1060	OPEN CLOSED	VP4_IN disconnected from VP4 VP4_IN connected to VP4	Closed
S1-6	Connects programmable supply, VB1_IN to VB1 (pin 13) on ADM1060	OPEN CLOSED	VB1_IN disconnected from VB1 VB1_IN connected to VB1	Closed
S1-7	Connects programmable supply, VB2_IN to VB2 (pin 14) on ADM1060	OPEN CLOSED	VB2_IN disconnected from VB2 VB2_IN connected to VB2	Closed
S2				
S2-1	Connects PDO8 to voltage meter and LED indicator	OPEN CLOSED	PDO8 disconnected from meter PDO8 connected to meter	Closed
S2-2	Connects PDO7 to voltage meter and LED indicator	OPEN CLOSED	PDO7 disconnected from meter PDO7 connected to meter	Closed
S2-3	Connects PDO6 to voltage meter and LED indicator	OPEN CLOSED	PDO6 disconnected from meter PDO6 connected to meter	Closed
S2-4	Connects PDO5 to voltage meter and LED indicator	OPEN CLOSED	PDO5 disconnected from meter PDO5 connected to meter	Closed
S2-5	Connects PDO4 to voltage meter and LED indicator	OPEN CLOSED	PDO4 disconnected from meter PDO4 connected to meter	Closed
S2-6	Connects PDO3 to voltage meter and LED indicator	OPEN CLOSED	PDO3 disconnected from meter PDO3 connected to meter	Closed
S2-7	Connects PDO2 to voltage meter and LED indicator	OPEN CLOSED	PDO2 disconnected from meter PDO2 connected to meter	Closed
S2-8	Connects PDO1 to voltage meter and LED indicator	OPEN CLOSED	PDO1 disconnected from meter PDO1 connected to meter	Closed
S3				
S3-1	Connects PDO9 to voltage meter and LED indicator	OPEN CLOSED	PDO9 disconnected from meter PDO9 connected to meter	Closed

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CONNECTOR FUNCTIONS
TABLE 2. CONNECTOR J1 PIN FUNCTIONS

Pin	Name	Function
J1-1	AO	Allows external connection to the A0 pin of the ADM1060. Facilitates pin probing.
J1-2	A1	Allows external connection to the A1 pin of the ADM1060. Facilitates pin probing.
J1-3	SDA	Allows external connection to the SDA pin of the ADM1060. Facilitates pin probing.
J1-4	SCL	Allows external connection to the SCL pin of the ADM1060. Facilitates pin probing.
J1-5	VDDCAP	Allows external connection to the VDDCAP pin of the ADM1060. Facilitates pin probing.
J1-6	GND	Allows external connection to the GND pin of the ADM1060. Facilitates pin probing.
J1-7	VCCP	Allows external connection to the VCCP pin of the ADM1060. Facilitates pin probing.
J1-8	VH	Allows external connection to the VH pin of the ADM1060. Facilitates pin probing.
J1-9	VP1	Allows external connection to the VP1 pin of the ADM1060. Facilitates pin probing.
J1-10	VP2	Allows external connection to the VP2 pin of the ADM1060. Facilitates pin probing.
J1-11	VP3	Allows external connection to the VP3 pin of the ADM1060. Facilitates pin probing.
J1-12	VP4	Allows external connection to the VP4 pin of the ADM1060. Facilitates pin probing.
J1-13	VB1	Allows external connection to the VB1 pin of the ADM1060. Facilitates pin probing.
J1-14	VB2	Allows external connection to the VB3 pin of the ADM1060. Facilitates pin probing.

TABLE 3. CONNECTOR J2 PIN FUNCTIONS

Pin	Name	Function
J2-1	PDO1	Allows external connection to the PDO1 pin of the ADM1060. Facilitates pin probing.
J2-2	PDO2	Allows external connection to the PDO2 pin of the ADM1060. Facilitates pin probing.
J2-3	PDO3	Allows external connection to the PDO3 pin of the ADM1060. Facilitates pin probing.
J2-4	PDO4	Allows external connection to the PDO4 pin of the ADM1060. Facilitates pin probing.
J2-5	PDO5	Allows external connection to the PDO5 pin of the ADM1060. Facilitates pin probing.
J2-6	PDO6	Allows external connection to the PDO6 pin of the ADM1060. Facilitates pin probing.
J2-7	PDO7	Allows external connection to the PDO7 pin of the ADM1060. Facilitates pin probing.
J2-8	PDO8	Allows external connection to the PDO8 pin of the ADM1060. Facilitates pin probing.
J2-9	PDO9	Allows external connection to the PDO9 pin of the ADM1060. Facilitates pin probing.
J2-10	WDI	Allows external connection to the WDI pin of the ADM1060. Facilitates pin probing.
J2-11	GPI4	Allows external connection to the GPI4 pin of the ADM1060. Facilitates pin probing.
J2-12	GPI3	Allows external connection to the GPI3 pin of the ADM1060. Facilitates pin probing.
J2-13	GPI2	Allows external connection to the GPI2 pin of the ADM1060. Facilitates pin probing.
J2-14	GPI1	Allows external connection to the GPI1 pin of the ADM1060. Facilitates pin probing.

TABLE 4. CONNECTOR J3 PIN FUNCTIONS

Pin	Name	Function
J3-1 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO9. Connect other resistor to J2-9.
J3-2 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO8. Connect other resistor to J2-8.
J3-3 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO7. Connect other resistor to J2-7.
J3-4 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO6. Connect other resistor to J2-6.
J3-5 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO5. Connect other resistor to J2-5.

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TABLE 4. CONNECTOR J3 PIN FUNCTIONS (contd.)

Pin	Name	Function
J3-6 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO4. Connect other resistor to J2-4.
J3-7 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO3. Connect other resistor to J2-3.
J3-8 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO2. Connect other resistor to J2-2.
J3-9 side of	_____	Allows connection of an external pull-up (thru- hole) resistor to PDO1. Connect other resistor to J2-1.

TABLE 5. CONNECTOR J4 PIN FUNCTIONS

Pin	Name	Function
J4-1 nected	_____	Allows connection of an external pull-up supply to PDO9 (via pull-up resistor con- between J2-9 and J3-1).
J4-2 nected	_____	Allows connection of an external pull-up supply to PDO8 (via pull-up resistor con- between J2-8 and J3-2).
J4-3 nected	_____	Allows connection of an external pull-up supply to PDO7 (via pull-up resistor con- between J2-7 and J3-3).
J4-4 nected	_____	Allows connection of an external pull-up supply to PDO6 (via pull-up resistor con- between J2-6 and J3-4).
J4-5 nected	_____	Allows connection of an external pull-up supply to PDO5 (via pull-up resistor con- between J2-5 and J3-5).
J4-6 nected	_____	Allows connection of an external pull-up supply to PDO4 (via pull-up resistor con- between J2-4 and J3-6).
J4-7 nected	_____	Allows connection of an external pull-up supply to PDO3 (via pull-up resistor con- between J2-3 and J3-7).
J4-8 nected	_____	Allows connection of an external pull-up supply to PDO2 (via pull-up resistor con- between J2-2 and J3-8).
J4-9 nected	_____	Allows connection of an external pull-up supply to PDO1 (via pull-up resistor con- between J2-1 and J3-9).

TABLE 6. CONNECTOR J5 PIN FUNCTIONS

Pin	Name	Function
J5-1	+15V	Power Jack for external 15V supply required to power all of the components on the ADM1060 Eval Board. Center pin must be connected to +15V. **Warning:** Care should be taken not to connect a supply to both J9 and J5 at the same time.

TABLE 7. CONNECTOR J6 (36 WAY CENTRONICS CONNECTOR) PIN FUNCTIONS
Description

Connector provides SMBus connection to a PC and data drive for the GPI's on the ADM1060.

Pin	Name	Function
J6-2	**SCL**	**Provides SMBus Master clock from PC**
J6-3	**SDA_1**	**Provides SMBus Data from PC**
J6-6	DATA_IN1	Data line to GPI1. Allows user to drive GPI1 high or low.
J6-7	DATA_IN2	Data line to GPI2. Allows user to drive GPI2 high or low.
J6-8	DATA_IN3	Data line to GPI3. Allows user to drive GPI3 high or low.
J6-9	DATA_IN4	Data line to GPI4. Allows user to drive GPI4 high or low.
J6-13	**SDA_2**	**Provides SMBus Data to PC**
J6-14	-------	GND
J6-15	-------	GND

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TABLE 7. CONNECTOR J3 PIN FUNCTIONS (contd.)

Pin	Name	Function
J6-16	-------	GND
J6-17	-------	GND
J6-18	-------	GND
J6-19	-------	GND
J6-20	-------	GND
J6-21	-------	GND
J6-22	-------	GND
J6-23	-------	GND
J6-24	-------	GND
J6-25	-------	GND
J6-26	-------	GND
J6-27	-------	GND
J6-28	-------	GND
J6-29	-------	GND
J6-30	-------	GND

TABLE 8. CONNECTOR J7 (3 PIN HEADER) PIN FUNCTIONS
Description
Provides direct connection to SMBus on Eval Board. Enables communication with ADM1060's not on Eval Board

Pin	Name	Function
J7-1	GND	Ground
J7-2	SDA	Provides SMBus SDA to ADM1060 exterior to the Eval Board
J7-3	SCL	Provides SMBus SCL to ADM1060 exterior to the Eval Board

TABLE 9. CONNECTOR J8 (10 WAY IDC HEADER) PIN FUNCTIONS
Description
Provides (alternative) direct connection to SMBus on Eval Board. Enables communication with ADM1060's not on Eval Board

Pin	Name	Function
J8-1	GND	Ground
J8-2	GND	Ground
J8-3	SDA	Provides SMBus SDA to ADM1060 exterior to the Eval Board
J8-4	SDA	Provides SMBus SDA to ADM1060 exterior to the Eval Board
J8-5	SCL	Provides SMBus SCL to ADM1060 exterior to the Eval Board
J8-6	SCL	Provides SMBus SCL to ADM1060 exterior to the Eval Board
J8-7	------	No Connect
J8-8	------	No Connect
J8-9	------	No Connect
J8-10	------	No Connect

TABLE 10. CONNECTOR J9 (2 PIN POWER BLOCK) PIN FUNCTIONS
Description
Provides (alternative) connection for external +15V supply to be applied to the ADM1060 Eval Board. **Warning:** Care should be taken not to connect a supply to both J9 and J5 at the same time.

Pin	Name	Function
J9-1	0V	Ground. Low Side of external supply must be connected here.
J9-2	15V	+15V connection. High Side of external supply must be connected here.

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TABLE 11. LED FUNCTIONS

LED	Name	Function
D1	PDO9	Indicates when a high has been driven onto PDO9 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S3-2 must be closed for this LED to be connected to PDO9.
D2	PDO8	Indicates when a high has been driven onto PDO8 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S2-1 must be closed for this LED to be connected to PDO9.
D3	PDO7	Indicates when a high has been driven onto PDO7 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S2-2 must be closed for this LED to be connected to PDO9.
D4	PDO6	Indicates when a high has been driven onto PDO6 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S2-3 must be closed for this LED to be connected to PDO9.
D5	PDO5	Indicates when a high has been driven onto PDO5 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S2-4 must be closed for this LED to be connected to PDO9.
D6	PDO4	Indicates when a high has been driven onto PDO4 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S2-5 must be closed for this LED to be connected to PDO9.
D7	PDO3	Indicates when a high has been driven onto PDO3 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S2-6 must be closed for this LED to be connected to PDO9.
D8	PDO2	Indicates when a high has been driven onto PDO2 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S2-7 must be closed for this LED to be connected to PDO9.
D9	PDO1	Indicates when a high has been driven onto PDO1 output. Luminescence indicates how high the PDO pin has been pulled relative to the other outputs. **Note:** S2-8 must be closed for this LED to be connected to PDO9.
D10	TEST_LDO	Indicates when the output of the on- board test LDO is on.
D12	WDI	Visually indicated the frequency at which the Watchdog Timer Circuit is running.
D13	POWER	Indicates when regulated 3.3V supply is on.

TABLE 12. TESTPOINTS

Testpoint	Name	Function
T1	CONVST	Enables the user to connect an external logic signal to the CONVST pin of ADC, U12, in order to control when data conversions occur.
T2	CONVST	Enables the user to connect an external logic signal to the CONVST pin of ADC, U13, in order to control when data conversions occur.
T3	CONVST	Enables the user to connect an external logic signal to the CONVST pin of ADC, U14, in order to control when data conversions occur.
T4	+INPUT	Positive input of the op- amp U7B. Enables user to easily access unused op-amp if required.
T5	-INPUT	Negative input of the op- amp U7B. Enables user to easily access unused op-amp if required.
T6	OUTPUT	Output of the op- amp U11C. Enables user to easily access unused op-amp if required.
T7	+INPUT	Positive input of the op- amp U11C. Enables user to easily access unused op-amp if required.
T8	-INPUT	Negative input of the op- amp U11C. Enables user to easily access unused op-amp if required.
T9	OUTPUT	Output of the op- amp U11C. Enables user to easily access unused op-amp if required.

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TABLE 12. TESTPOINTS (contd.)

Testpoint	Name	Function
T10	PDO4	Enables user to measure the voltage output on PDO4. **Note:** S2-5 must be closed for this Testpoint to be connected to PDO4.
T11	PDO3	Enables user to measure the voltage output on PDO3. **Note:** S2-6 must be closed for this Testpoint to be connected to PDO3.
T12	PDO2	Enables user to measure the voltage output on PDO2. **Note:** S2-7 must be closed for this Testpoint to be connected to PDO2.
T13	PDO1	Enables user to measure the voltage output on PDO1. **Note:** S2-8 must be closed for this Testpoint to be connected to PDO1.
T14	+15V	Enables user to measure supply voltage of the board.
T15	GND	Enables user to measure the ground of the board.
T16	+3.3V	Enables user to measure the output of the regulated 3.3V supply generated on board.
T17	+7V	Enables user to measure the output of the regulated 7V supply generated on board.
T18	-7V	Enables user to measure the output of the regulated -7V supply generated on board.
T19	+5.0V	Enables user to measure the output of the regulated 5V supply generated on board.
T20	3.0VREF	Enables user to measure the output of the 3.0V DAC Reference.
T21	2.5VREF	Enables user to measure the output of the 2.5V ADC Reference.

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ADM1060 SOFTWARE INSTALLATION

To install the ADM1060 software:

- Insert the CD- ROM (provided in the Eval Kit) into the CD-ROM drive. The CD should auto-run the installer.

If the installer does not run:

- Click on Start- Run

- Enter X:ADM1060Eval.exe, where X is the name of your CD-ROM drive.

- Click on Ok.

Alternatively,

- Run Windows Explorer

- Select the CD-ROM Drive

- Double Click on ADM1060 Evaluation Software

The InstallShield Wizard window will appear (see figure 7 below).

Click on *Change* to change the directory that the Evaluation Software installs to. Click *Finish* to continue the installation. InstallShield will extract the files from the CD and prepare for installation.
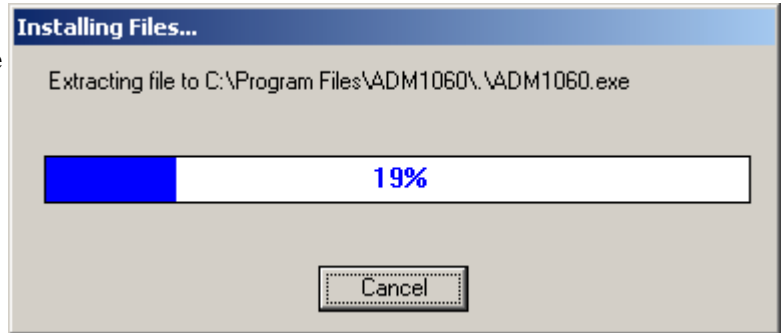
Figure 8. Preparing for Installation

A dialog box will then appear showing that the installshield is preparing to install the LabVIEW Run-Time Engine. The LabVIEW Run-Time Engine will then install:-
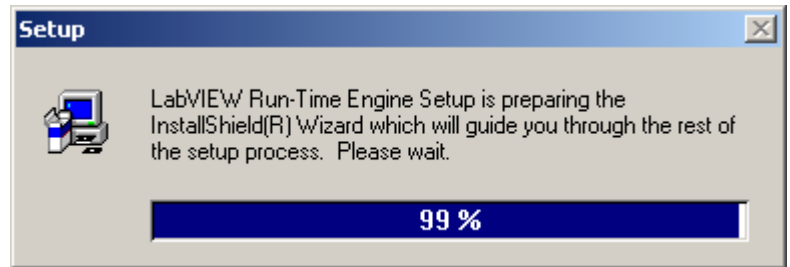
Figure 9. Setup
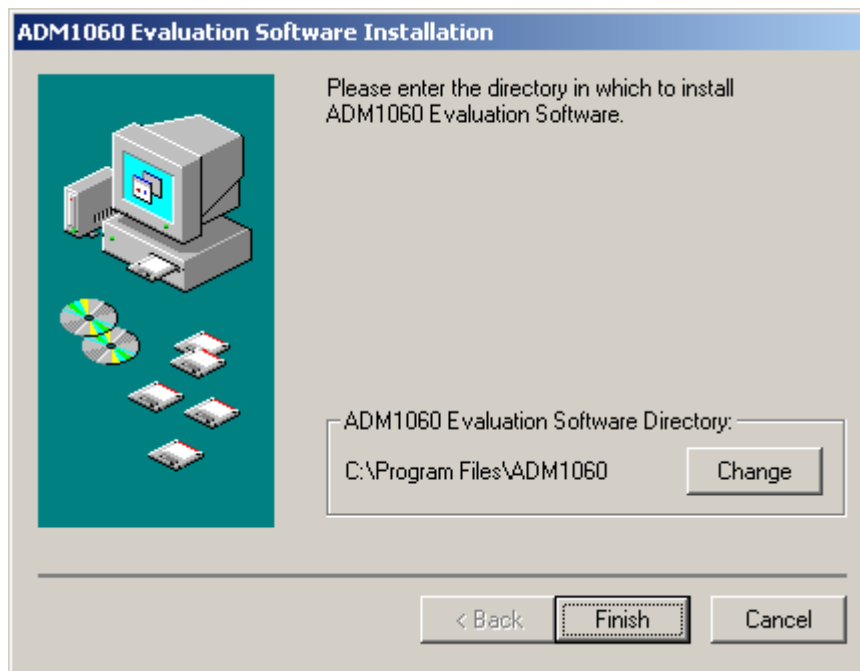
Figure 7. InstallShield Wizard Startup Window

When the installation is complete the following window is displayed:-
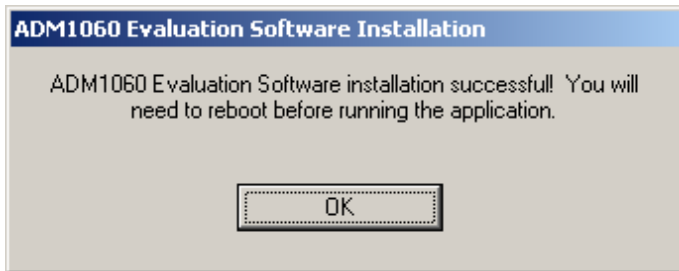
Figure 10. Installation Complete

Click *Ok*. (Do not reboot at this point.)

The software will now attempt to install the Access Hardware components.

The screen in Figure 11 will be displayed.

Click *Next* to continue with the Access Hardware installation.

Note: Previous users of the ADM1060 software (version 3) will have the Access Hardware components installed on their system already, so they can click *Cancel* and exit the installer at this point if they prefer.
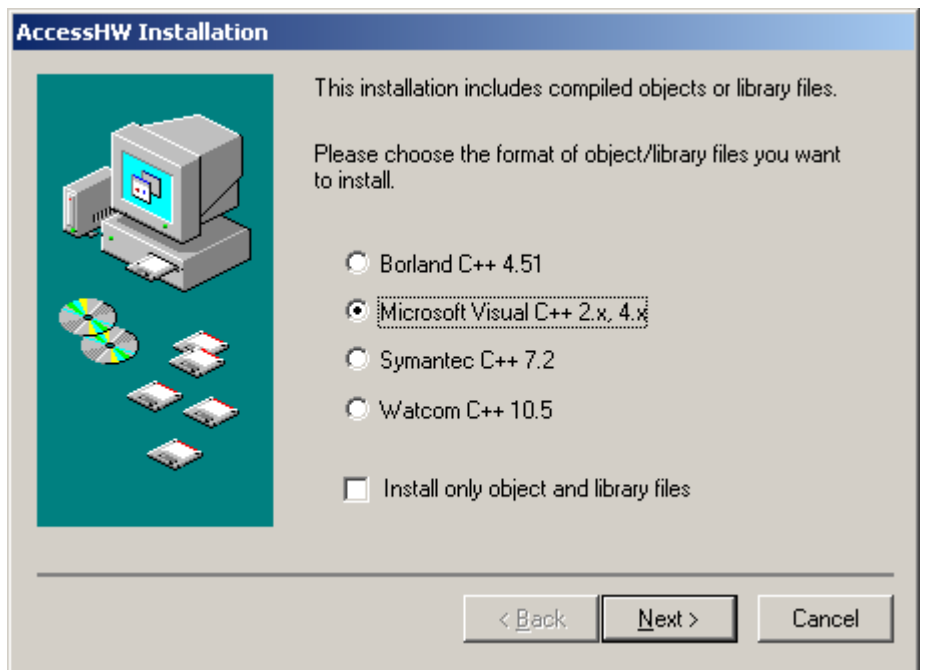
Figure 11. Install Access Hardware
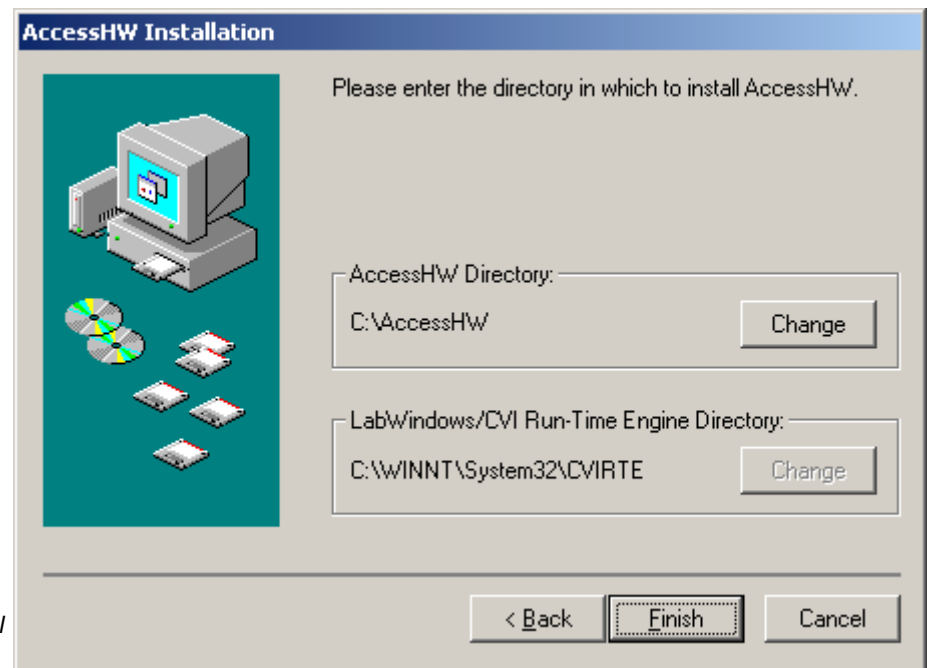
Figure 12. Choose location to installl Access Hardware

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The software installation allows you to choose the directory where the software is to be installed. Firstly, a default directory is proposed (see Figure 12).

Click *Change* to change the directory that Access Hardware installs to. Click *Finish* to continue the installation. InstallShield will extract the files from the CD and prepare for installation.

If previous versions of Access Hardware are detected on the user's system, a number of messages will be displayed asking to user to confirm that existing components can be replaced:-
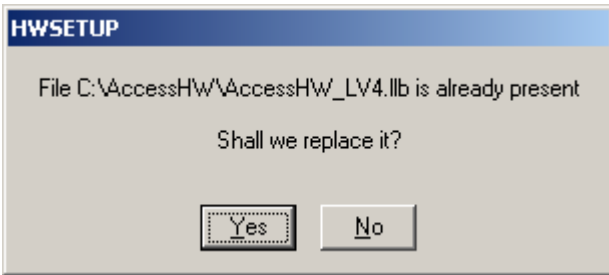
Figure 13. Replace existing Access Hardware component?

Click *Yes* to replace the previous components.

Clcik *No* to keep to previous components.

Note: All versions of Access Hardware are identical.

The following screen is now displayed:-
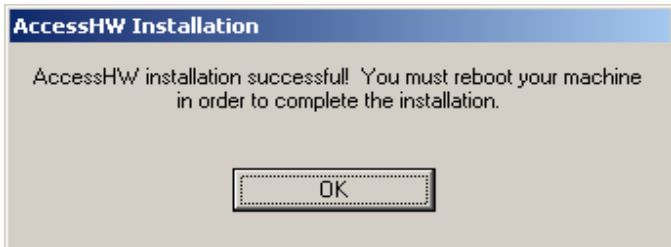
Figure 14. Installation complete

Installation is now complete.

Click *Ok* to exit the installer.

Note: You must reboot your machine at this point.

UNINSTALLATING THE ADM1060 EVAL SOFTWARE
Click on
>**Start**
>**Programs**
>**ADM1060 Evaluation Software**
>**Uninstall ADM1060 Evaluation Software**

The Uninstaller will then be launched.

The first window will ask the user to verify that they want to remove the ADM1060 Evaluation software:
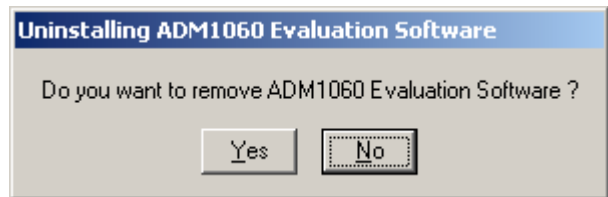
Figure 15. Confirm removal of software

Click *No* to exit the uninstaller.

Click *Yes* to launch the uninstaller.

A window may then appear warning the user that a read-only file will be erased:
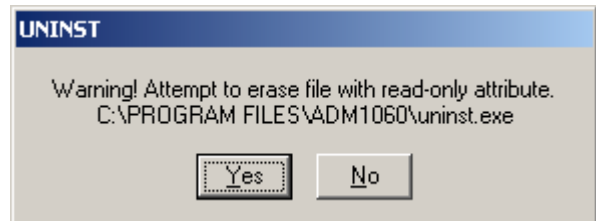
Figure 16. Confirm removal of read-only file

Click *Yes* to erase the read-only file.

Click *No* to keep the read-only file.

The following window is now displayed:
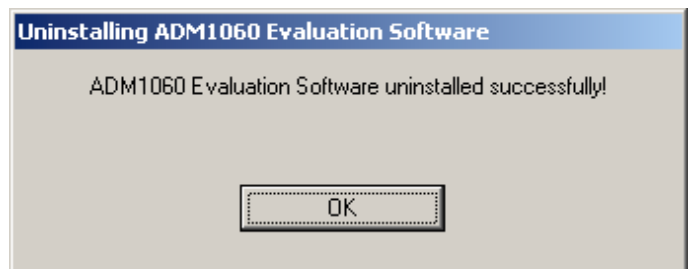
Figure 17. Confirm removal of software

Uninstallation is now complete.

Click *OK* to exit the uninstaller.

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LICENSE AGREEMENT

The first time the software is launched the license agreement will be displayed:-

The *I Agree* icon must be checked and *Continue* clicked before the user is allowed to proceed.

If the *I Do Not Agree* icon is checked and *Continue* clicked the software will not launch.
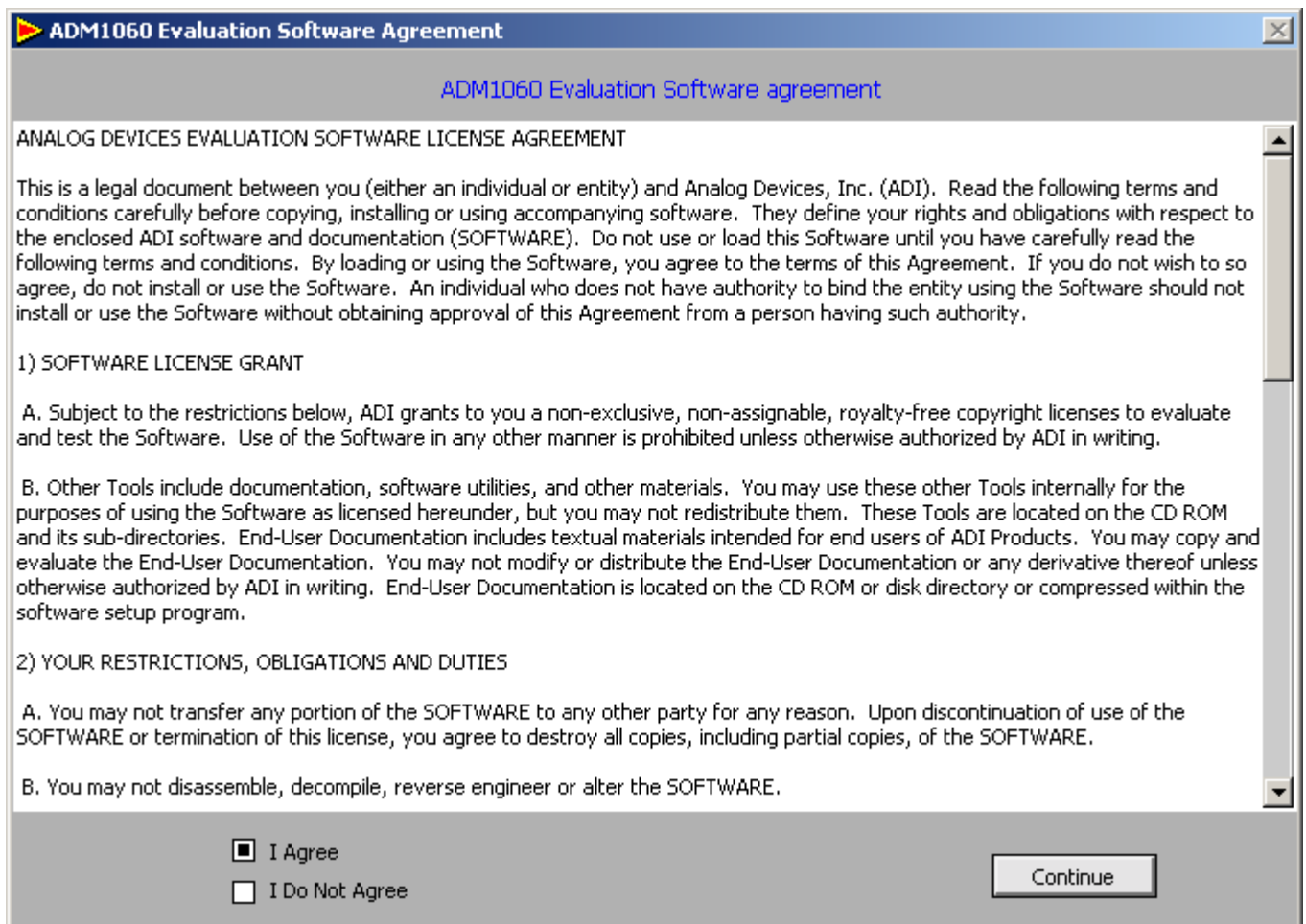
Figure 18. Software License Agreement

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RUNNING THE ADM1060 SOFTWARE
To run the ADM1060 evaluation software,
Click on
>Start
>Programs
>ADM1060 Evaluation Software
>ADM1060

When the program starts, the first window to appear is the Address Search Window(see Figure 19 below). A number of checks are performed at this stage.

Firstly there is a check for a valid Parallel port base address. The range Includes 0x278, 0x2BC, 0x378 and 0x3BC. The result of the search is displayed at the bottom right hand corner of the Address Search Window. If no valid base address is found then the dialog box of Figure 21 will Appear.

Secondly there is a check for a valid ADM1060 device address. There are only four possible addresses 00, 01, 10 and 11, dictated by the setting of Pin 1 (A0) and Pin 2 (A1) in hardware. If one or more addresses are found then the Address Search Window will display the addresses that may be selected for configuration.

A feature of this software is that it will allow up to four short circuits on the VPn or VH inputs. For example, four un-powered external PSUs connected to the Evaluation board. The software will automatically detect which of the five inputs has a valid supply by individually applying 5V to each of the inputs and checking each of the four possible ADM1060 addresses for a response. If five short circuits are detected the dialog box of Figure 21 will appear.

Thirdly there is a check to see if the evaluation board is present. If an evaluation board is not detected then the lower rectangular box in the middle of the Device Address Window will turn red and will read "Evaluation Board Absent".

Note. When using the three pin SMBus cable (Not supplied in the standard kit) with the Evaluation Board, the data inputs to the GPIs in the 'Evaluation Board Configuration' window will have no effect.

Four different ADM1060 devices can be addressed at any one time, depending on the hardware state of address bits A0 and A1. The Address Search Window shows which of these addresses are currently detected.
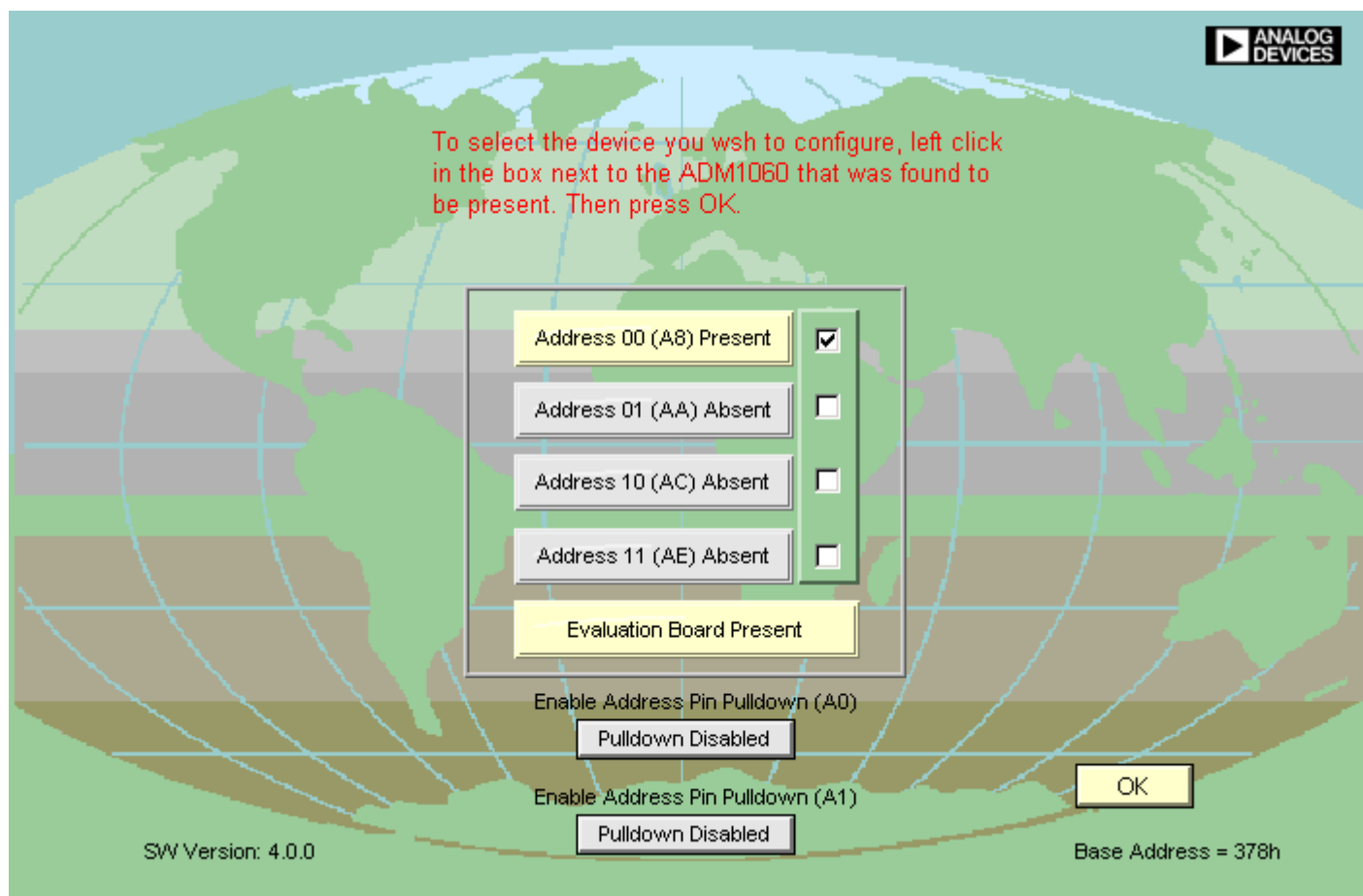
Figure 19. Address Search Window (one ADM1060 device present)

One ADM1060 detected

The screenshot in Figure 19 should appear when the standard Evaluation Board is connected before the program is launched. The ADM1060 on the Evaluation Board has the address set to 00 and a tick will appear in the 'Address 00 Present' box by default. Figure 19 above indicates one ADM1060 device with the address 00 (A8) is present. Click OK when ready to proceed programming this device.

Note. The ADM1060 device address is hardwired on the Evaluation board to 00 (A8). For this reason, multiple ADM1060 Evaluation Boards cannot be connected together to simulate multiple ADM1060 devices on a bus.

Multiple ADM1060s detected

If there are multiple ADM1060 devices detected on the bus then the user must decide which one they would like to program. Figure 20 below shows the Device Search Window when more than one device is detected on the bus. A particular ADM1060 can be selected by placing a tick in the relevent box and clicking OK.

If multiple ADM1060 devices were detcted the user can return to the Address Search Window at any time by selecting Select Device Address on the main Menu Bar. From here another device can be selected as described above.
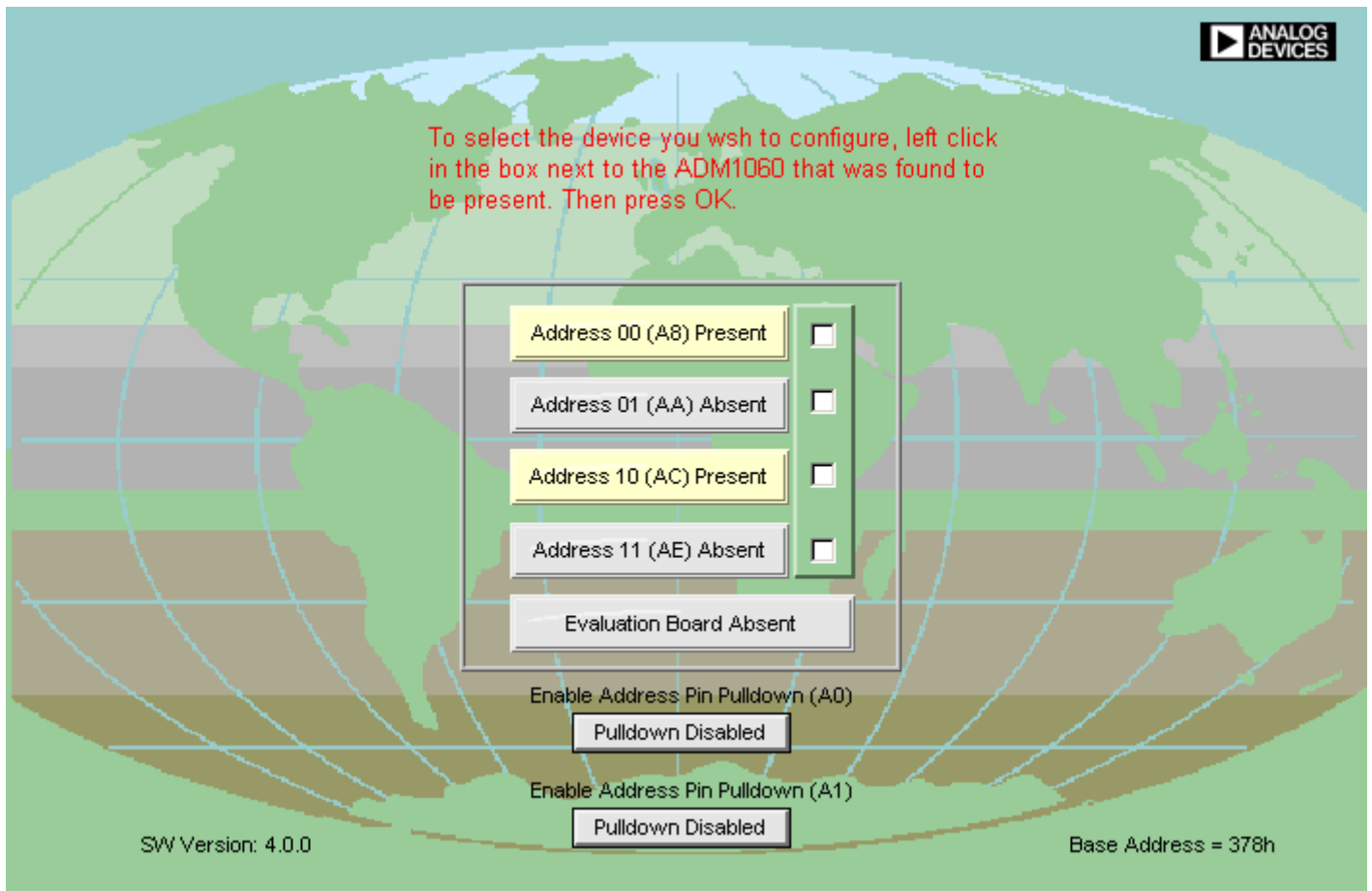
Figure 20. Address Search Window (two ADM1060 devices present)

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If no ADM1060 device is detected on the bus or no parallel port base address is detected, the window in Figure 22 will appear, along with the following dialog box:-
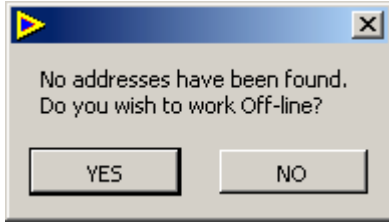
Figure 21. The option to work off-line

By clicking *YES* the user can proceed to program a virtual ADM1060 device (even though there is no device present). The configuration file can be saved and recalled later when a device is present.

Clicking *NO* at this point will exit the program.

Note. The software will only allow one device to be configured at any one time.
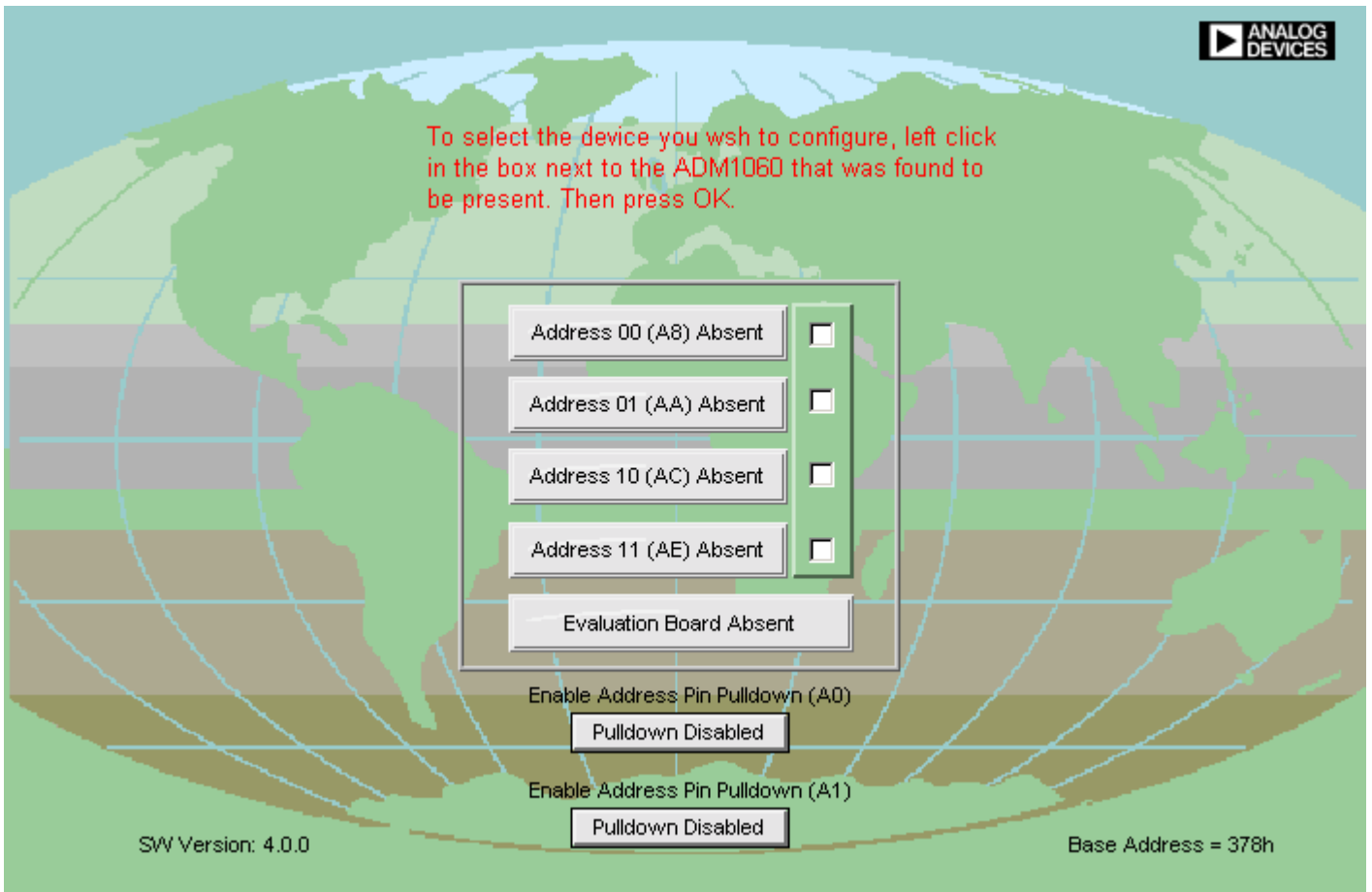
Figure 22. Address Search Window (no ADM1060 devices present)

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MAIN MENU BAR

At this point the Floating Menu Bar should appear in the top left of the screen. This Menu Bar gives the user access to all the windows required to program the ADM1060 and the Eval Board.

To exit the ADM1060 Evaulation Software at any time click on the *Exit Program* button in the bottom right hand corner.

Click the *Help* button and then *Show Help* for the help option. When the cursor is passed over various objects a written description of that objects function is will be displayed in the help window. Close the Help window to exit Help.

Note: The help function can also be activated when other windows are open by pressing Ctrl+H.

There are three variations of the main Menu Bar:

1. Normal Mode (Figure 23): One ADM1060 detected; working on-line. Figure 23.

2. Multiple ADM1060s detected (Figure 24): Similar to Normal mode but Select Device Address option is available. This returns the user to the Device Address Window where another device may be selected.

3. Off-Line Mode (Figure 25): Only the File and ADM1060 Configuration Menus are available. Files saved in Off-line mode may be recalled to an active device at a later time.
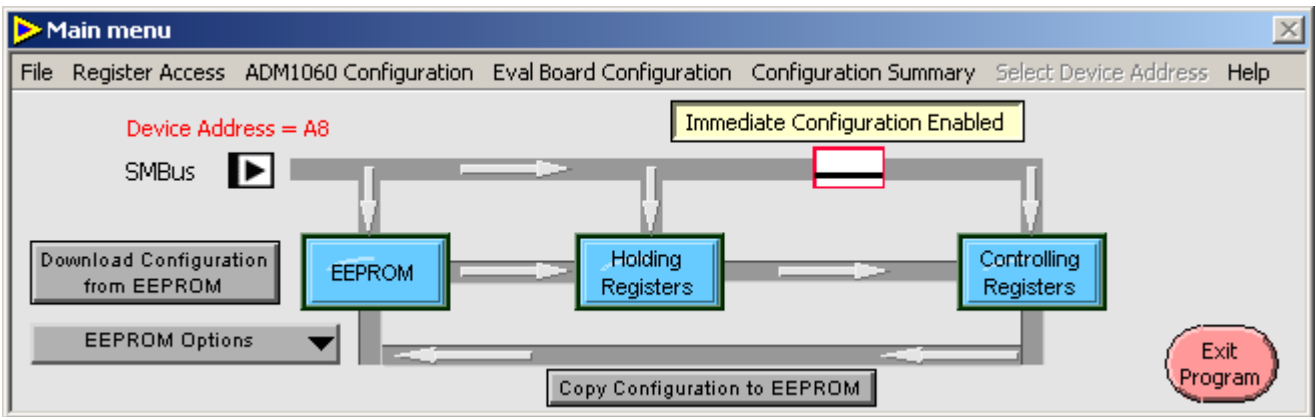
Figure 23. Floating Menu Bar (Normal mode)
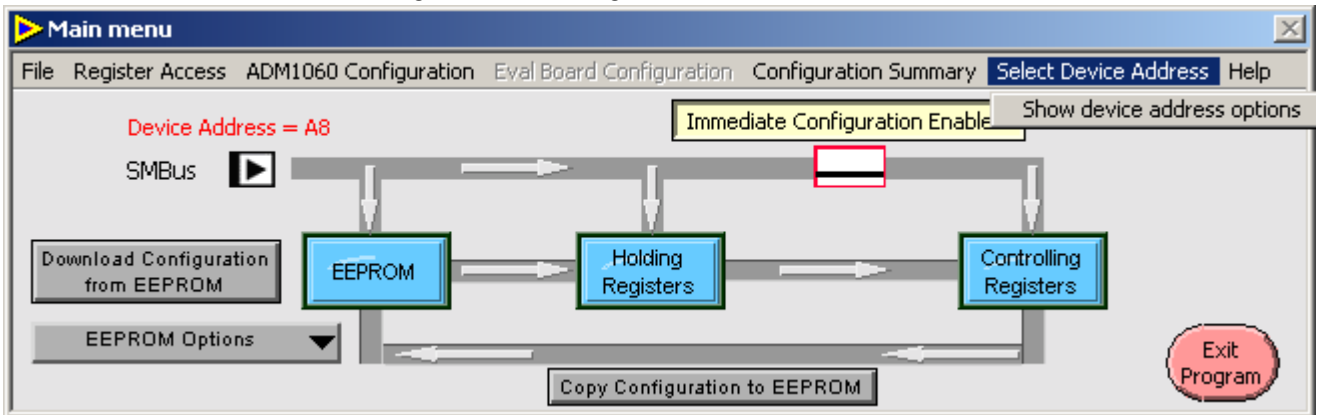
Figure 24. Floating Menu Bar (Multiple devices detected on bus).
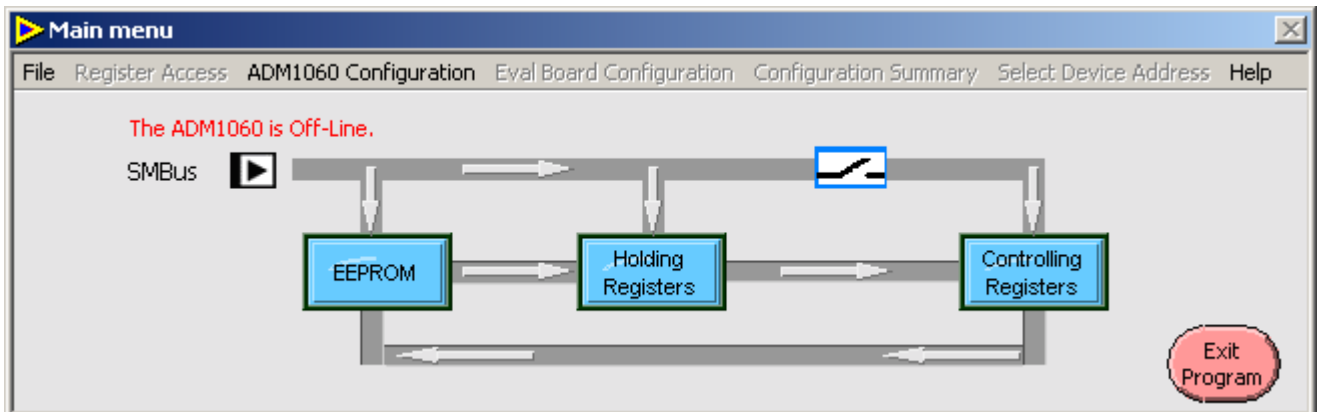
Figure 25. Floating Menu Bar (Off-line Mode)

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USING THE MAIN MENU BAR

The Main Menu of Figure 26 is the master window which contains all the drop down menus that launch other control windows used to configure the ADM1060 and the Evaluation board. The window has a graphical representation of the EEPROM, Holding and Controlling Registers and gives the user a greater understanding of the functionality of this block. The device address currently being configured is also displayed in this window. All the items that are green are control functions. There are four buttons and one drop down list box with further EEPROM options.

Immediate Configuration Disabled/Enabled

In Enabled mode (see Figure 27) the Holding Registers and the Controlling Registers are written to simultaneously therefore data written to the ADM1060 device over the SMBus interface will update the device immediately. On start-up this button defaults to Enabled. There is a switch icon in the data path to graphically show the function of this button.

Note: In this mode *Update Configuration* button is unavailable.

In Disabled mode (see Figure 26) data is written to the Holding Registers only. Therefore any changes to the configuration of the device will have no effect until the data in the Holding Registers is copied into the Controlling
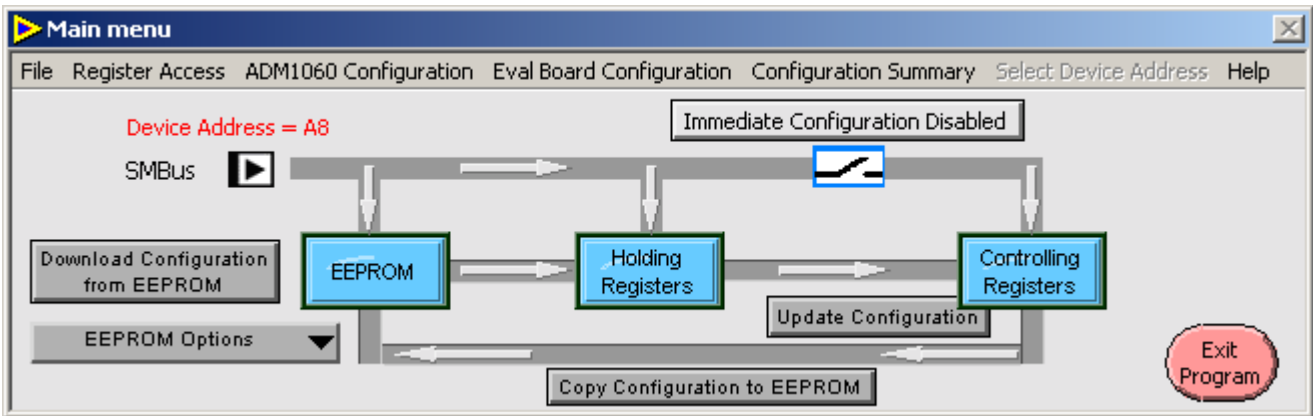
Figure 26. Immediate Configuration Disabled
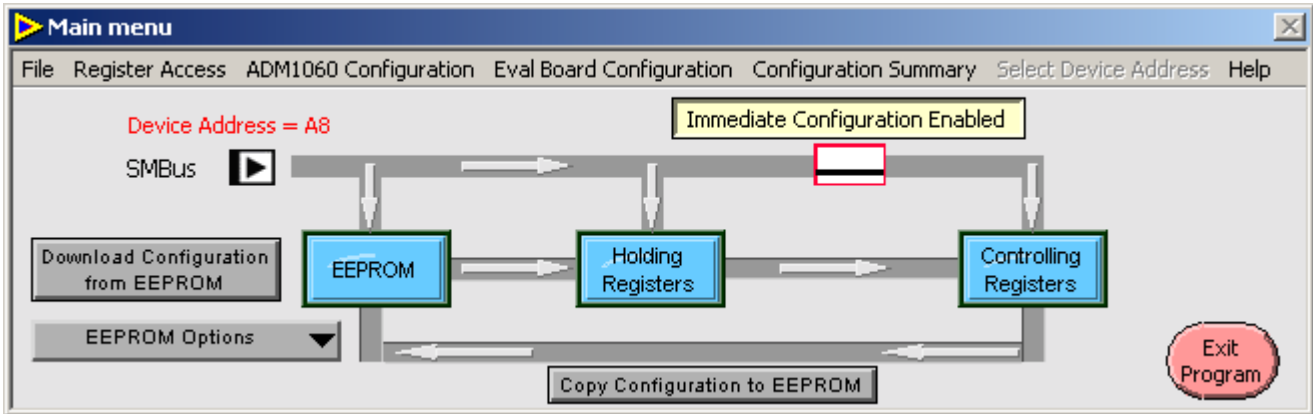
Figure 27. Immediate Configuration Enabled
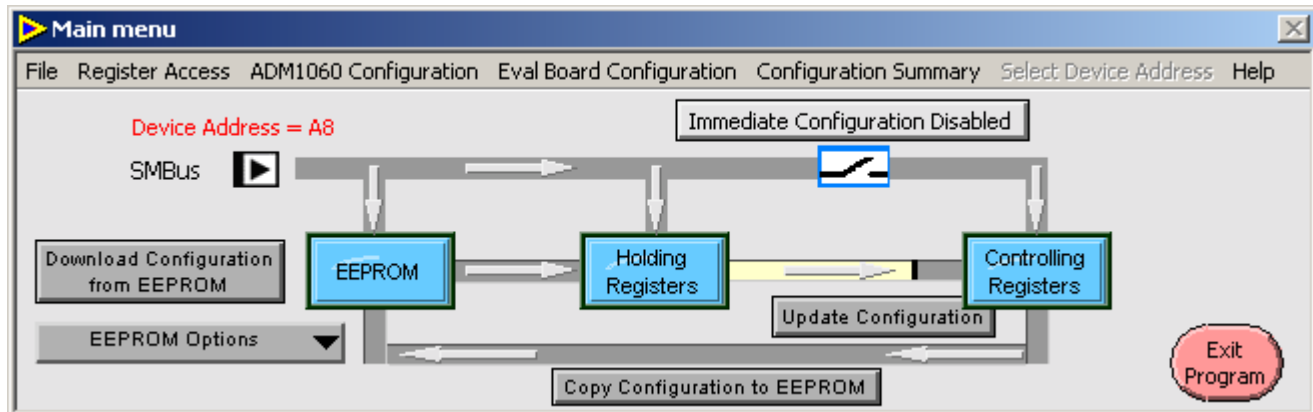
Figure 28. Update Configuration button pressed

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Registers. This is achieved by pressing the *Update Configuration* button. See Figure 28.

Update Configuration
Once the *Update Configuration* button is pressed the data in the Holding registers is copied into the Controlling Registers. There is a red progress line that shows the data is being copied. This button self clears (Resets) on completion of the task.
Note: In this mode *Update Configuration* button is available.

Download Configuration from EEPROM
Once this button is pressed the data held in EEPROM is written to the holding registers.
However, there are two points to note:-
1. If the Immediate Configuration is Enabled, the Holding registers become transparent and the data from the EEPROM is written to the Configuration Registers simultaneously.

This is represented by a red progress line that shows the data is being written to the Holding and Controlling registers.
2. If the Immediate Configuration is Disabled, the data from EEPROM is written to the Holding registers first then it is copied to the Configuration registers. This is represented by a red progress line that shows data is being written to the Holding registers and then to the Controlling registers with a delay.
This button self clears (Resets) on completion of the task.

Copy Configuration to EEPROM
Once this button is pressed the contents of the Controlling registers are copied into EEPROM. This is represented by a red progress line that shows data is being copied to the EEPROM (see Figure 30).

This button self clears (Resets) on completion of the task.
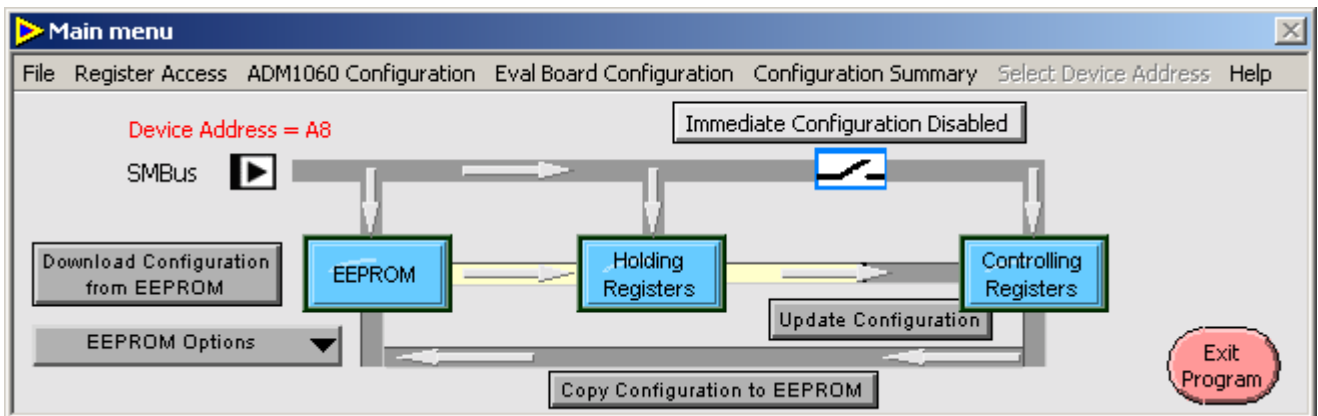
Figure 29. Download Configuration from EEPROM button pressed
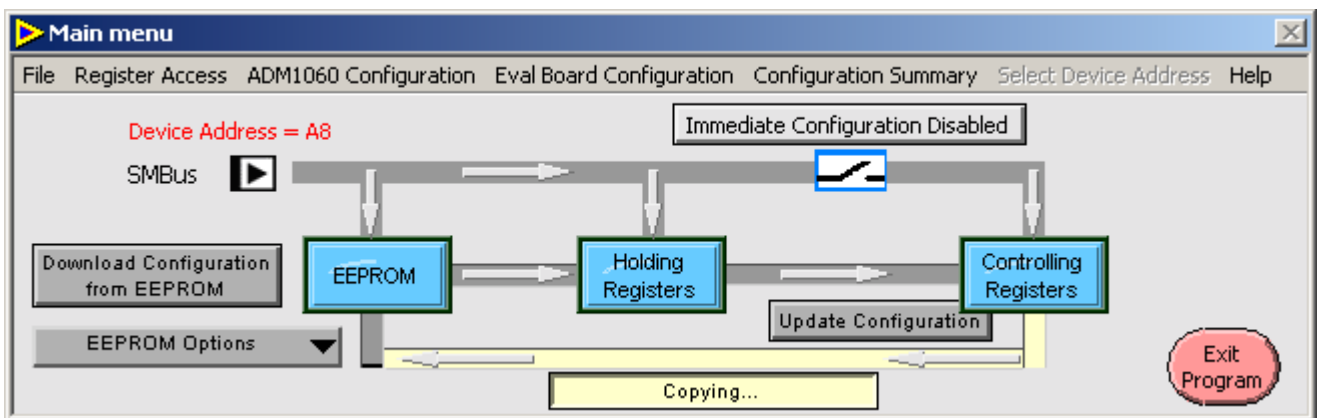
Figure 30. Copy Configuration to EEPROM button pressed

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EEPROM Options

This drop down list has three options (see Figure 31):-

1.***Erase ALL EEPROM***: This option will erase all the EEPROM (Set all data bits to FF).

2.***Erase EEPROM Page***: This option will open a window in the same area as the main window listing all the EEPROM pages that may be selected for erasing (set to FF). To select a page to erase, click in the relevant box (See Figure 32). A tick will appear signifying that this is the page selected for erasure. Pressing *Ok* will execute the instruction.

Once the instruction has been carried out the window will close and the main window will be seen again.

3. ***Configure User EERPOM***: Allows the user to manually configure EPPROM. (see next page....)
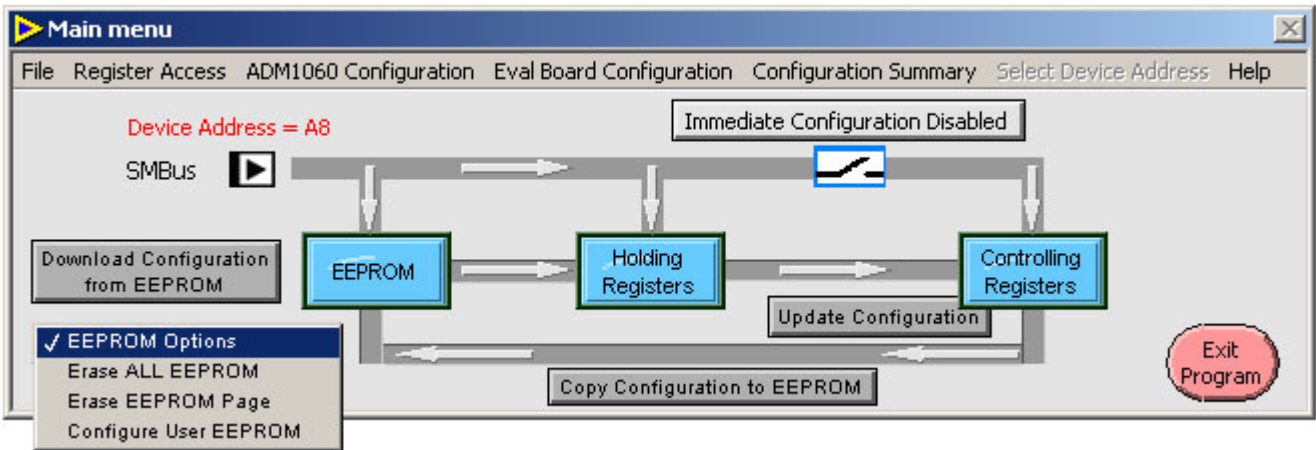
Figure 31. EEPROM Options Menu
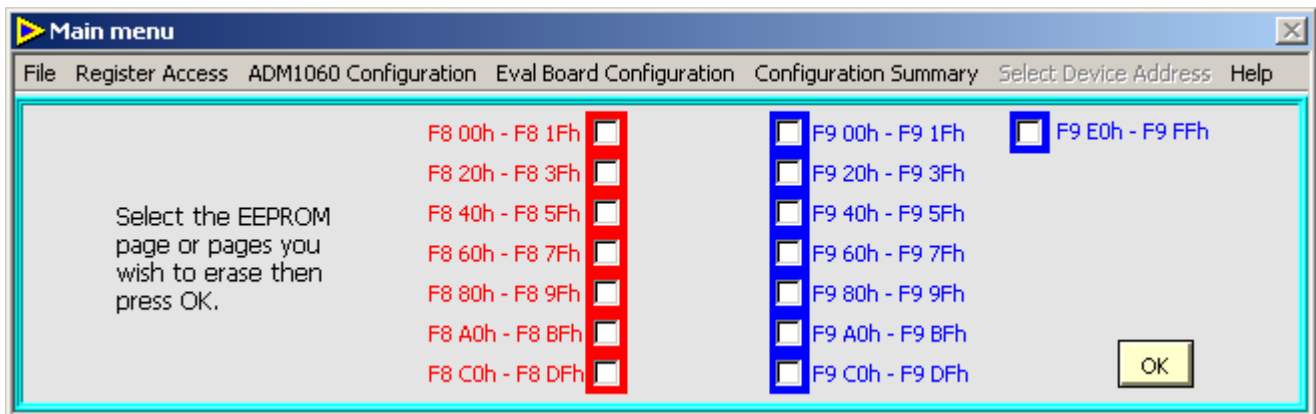
Figure 31a. Erase EEPROM page

Configure User EERPOM
The window in Figure 31b is for the configuration of the user EEPROM. Upon opening the window the 32 locations of page 1 in the user EEPROM are read and the values are displayed in the red boxes. These red boxes are also for the user to enter an 8-bit Hex word. This is achieved by highlighting the value displayed in the box, then enter a new value.

Once a value is highlighted it is possible to Tab through the input fields. To the left of each of these red boxes is the location in EEPROM the input values live. If the value entered in the boxes exceeds FF the software will snap the value back to the highest allowable value.

There are 8 different pages that the user may use. It is important to note that the software will automatically write data to EEPROM every time the page is changed. This prevents loss of data if the user were to change page without first pressing the button at the base of the window to write data to EEPROM. However, it is good working practice to press this button each time the user configures the page.

Note: When the page is changed or the *Press To Write Data* button is pressed DO NOT attempt to change page. The program is performing a read and write operation and the user must wait until the Page button or *Press To Write Data* button resets itself before continuing.

Figure 32a. Press this button to write user data to EEPROM

Figure 32b. Data write in progress

Figure 31b. Configure User EEPROM page

Miscellaneous Icons:

1. Device Address
The address of the device that the ADM1060 Evaluation Software is currently configuring is always visible in the Main Menu bar in red text in the top left.

Device Address = A8

2. SMBus Icon
The SMBus that is present in the Main Menu and many other windows spins when there is SMBus activity.

SMBus ▶

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1. SUPPLY FAULT DETECTORS

The ADM1060 features 7 Supply Fault Detectors, VH, VP1-4 and VB1-2. These are used to ensure that supplies remain in compliance according to the user's specifications. The SFD's have a number of programmable features which are described in detail in the datasheet. Briefly, however, the features are:-

• Programmable Input Range
• Programmable Overvoltage Threshold
• Programmable Overvoltage Hysteresis
• Programmable Undervoltage Threshold
• Programmable Overvoltage Hysteresis
• Programmable Glitch Filter (up to 100us)
• Programmable Fault Type
• Programmable Polarity (on VBn only)

All of these features can be programmed in the via the Window in Figure 33, which appears when "1. Supply Fault Detectors (SFDs)" is selected from the "ADM1060 Configuration" menu:-

The required SFD is selected by clicking on the relevant block along the top of the window. The name of the SFD currently selected is displayed underneath the SFD selector block. The border is also colour-coded depending on which SFD is currently selected.
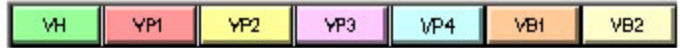
Setting the Undervoltage/Overvoltage Thresholds

These are set by typing the target overvoltage and undervoltage levels into the relevent boxes and pressing the *Enter* key on the keyboard. The closest actual voltage is selected (within 1% accuracy) and displayed beneath this, along with the HEX number associated with this value. In negative mode the "-" symbol must be entered.
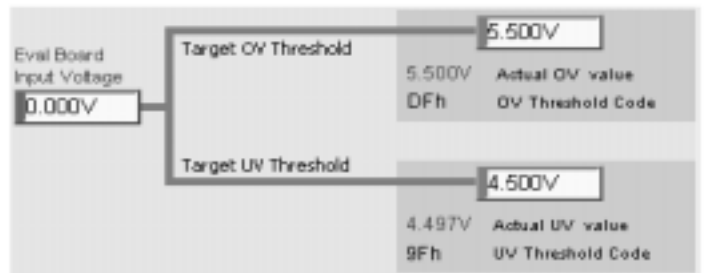
Figure 34. Setting the UV and OV thresholds
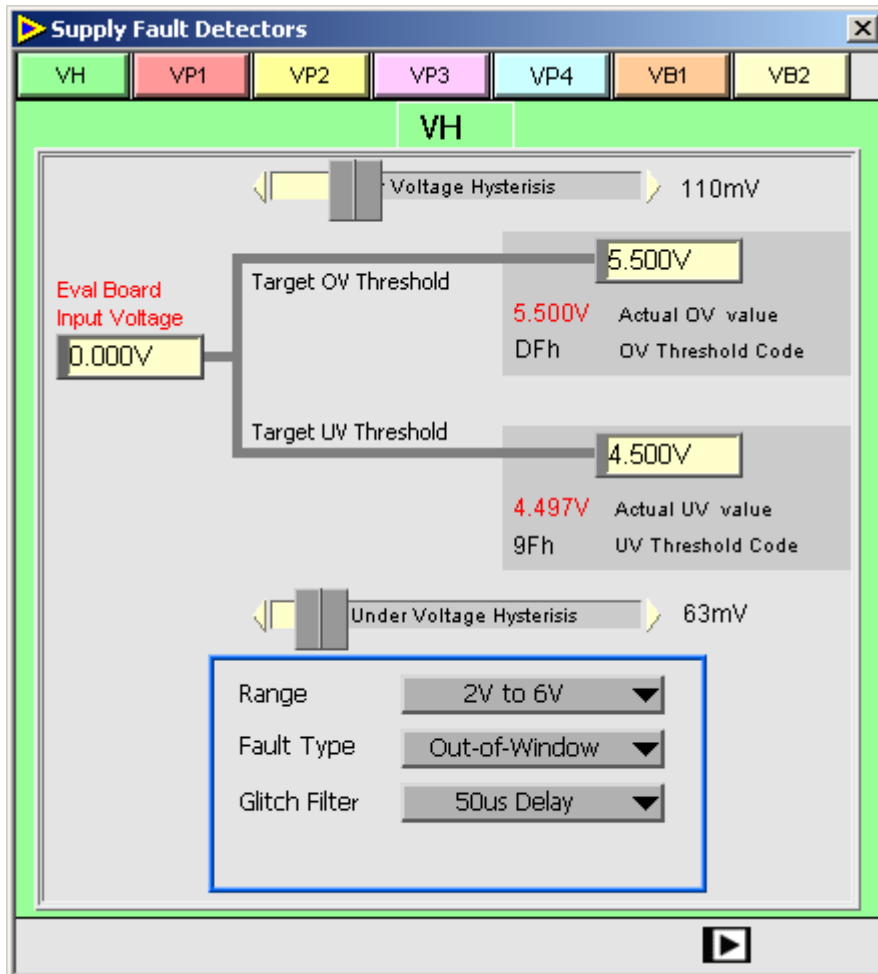
Figure 33. Supply Fault Detector Window

The upper and lower limits of the window change depending on the range that is selected:-

• VH- 2V to 6V or 4.8V to 14.4V

• VPn- 0.6V to 1.8V or1V to 3V or 2V to 6V

• VBn- 1V to 3V or 2V to 6V (Positive Mode)

       -6V to -2V (Negative Mode)

Voltages can be applied to the Inputs via DACs on the Eval Board. The current applied voltage is displayed in the *Eval Board Input Voltage* box. If working Off-line the text Off-line will be displayed. See the section on VP,VH AND VB SETUP WINDOW for more information on setting Eval Board voltage levels.

Setting the Undervoltage/Overvoltage Hysteresis

These are set using the horizontal slides above and below the Overvoltage and Undervoltage settings. Again, resolution to 1 LSB is provided by using the up/down arrows at either end of the slide:-
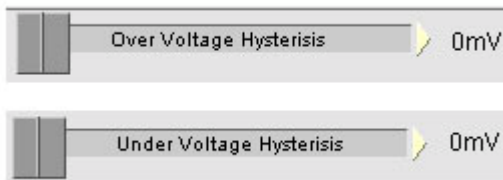
Figure 35. Selecting UV and OV Hysteresis

The max. programmable hysteresis depends on the range selected:-

• VH- 486mV or 1.16V

• VPn- 146mV or 243mV or 486mV

• VBn- 243mV or 486mV

Selecting the Range

Three ranges are available on the VPn options. There are two available on VBn and VH, except the VBn inputs in negative mode, where only -6V to -2V is available. The range is selected in the dropdown menu below:-
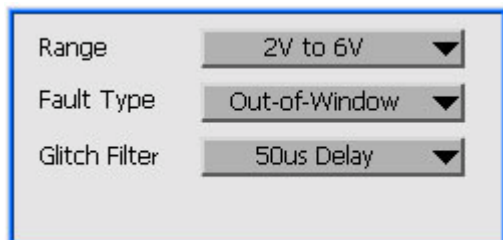
Figure 36. Selecting UV/OV Range

If the user tries to enter a value outside the currently selected range the range selection menu will turn red to inform the user of this and the input field of Figure 34 will display the

lowest or highest valid value in the selected range (depending whether the user inputs a value that is too high or too low).

Selecting the Fault Type

There are 3 different fault types available on the output of the SFD's: Undervoltage, Overvoltage or Out-of-window (undervoltage OR overvoltage). These are selected in the following menu:-
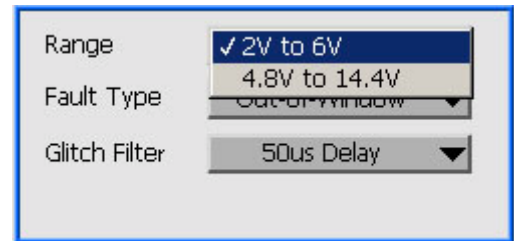

Figure 37. Selecting Fault Type

Setting the Glitch Filter

Each of the SFD's has a programmable glitch filter which enables the user to ignore the output of the SFD for up to 100µs. This is useful for preventing the ADM1060 from changing the system setup based on transient noise in a supply. The time length of the glitch filter is, again, selected in a dropdown menu (see below):-
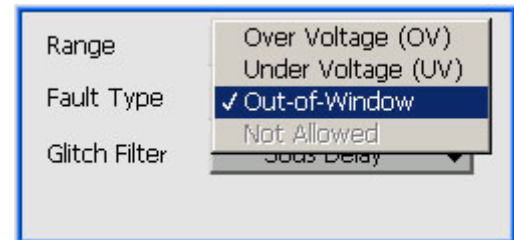

Figure 38. Selecting Glitch Filter Time

Selecting Polarity (VB1, VB2 Only)

The bipolar inputs, VBn, can supervise either positive or negative voltages (but not both at the same time). The mode of operation must be explicitly set using the polarity as shown:-
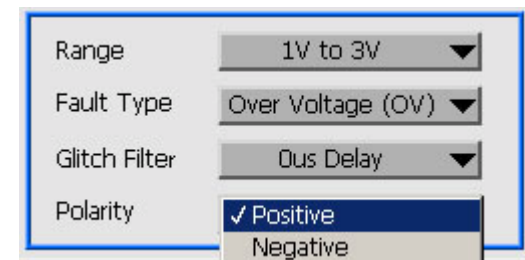

Figure 39. Selecting Polarity (VB1, VB2 Only)

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2. GENERAL PURPOSE INPUT WINDOW

The ADM1060 has 4 General Purpose Inputs, which can be used as logic inputs to the device. Signals such as RESET, POWER_GD, Manual Reset can be applied to these pins and used to control the status of any/all of the PDO's of the device. The input signal can be conditioned in the following window, which can be selected in the ADM1060 Configuration menu:-
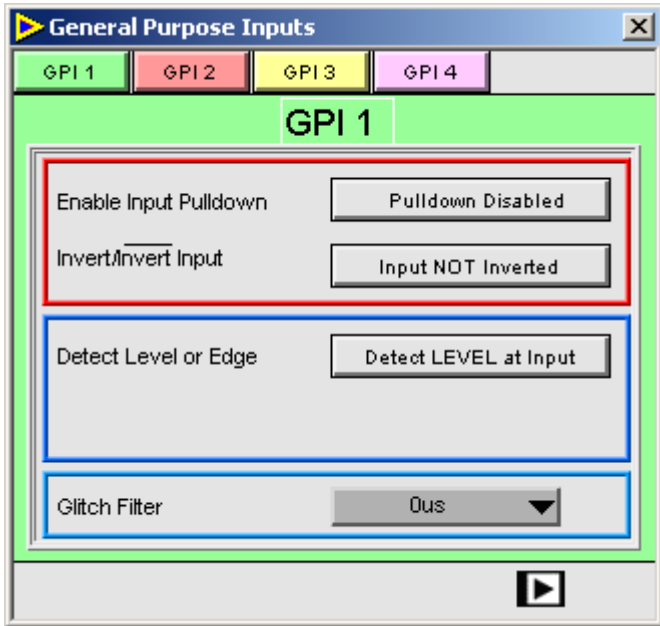

Figure 40. GPI Signal Conditioning

The required GPI is selected by clicking on the relevant block along the top of the window. The name of the GPI currently selected is displayed underneath the GPI sleector block. The border is also colour-coded depending on which GPI is currently selected.

Pulldown Enable

A button is provided which enables a weak pulldown on the selected GPI. Clicking on this causes the GPI to be pulled to GND via a 10μA current source. This ensures a known condition on the GPI input even when it is unused or left floating. The following button enables pulldown:

Inverting the Input

The user can invert the GPI signal before it is applied to the PLB using the following button:

Level/Edge Detect

The GPI circuit can be programmed to look for either a level or an edge:-

Selecting *Detect Edge at Input* will display a drop down list box for setting the length of the output pulse:-

Glitch Filter

Each of the GPI's has a glitch filter, which operates the same as the SFD glitch filters. This enables the user to ignore noisy logic transitions (e.g) signal bouncing on the switch of a Manual Reset. This dropdown menu looks like:

3. WATCHDOG DETECTOR WINDOW

A Watchdog Detector is provided on the ADM1060. It can be used to monitor the integrity of a processor clock. The WDI detects high and low transitions on the input. If a transition fails to occur within a programmed timout period, the Watchdog Detector Circuit will output 2 fault signals.

A latched output which is reset by reading fault registers LATF1 anf LATF2. A pulsed output, whose width is programmable in software.

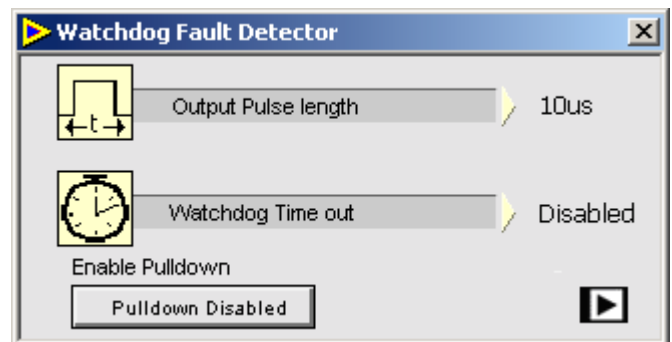The ADM1060's Watchdog Detector is set up in the Watchdog Window:-

Figure 41. Watchdog Input Window

Both the Pulse Length and the Timeout Period are programmable as shown above. The relevent symbols can be dragged along each slider with the cursor or stepped along using the arrows at each end of each slider.

4. PROGRAMMABLE LOGIC BLOCK WINDOW

The logical core of the ADM1060 is the Programmable Logic Block Array. This is comprised of 9 macrocells or Programmable Logic Blocks (PLB's), one for each PDO. Here the user can program the device to control the status of the PDO's based on the logical status of the SFD's the GPI's, the WDI and the other PLB's (a PLB cannot be input to itself). Details are contained in the datasheet. Programming the PLB in the Evaluation software is done in the PLB Window (see figure 42).

The window clearly shows the construction of the PLBA- 9 PLB's, each divided into 2 functions (A and B). These functions have 21 inputs each:-

• 7 SFD's

• 8 PLB's

• 4 GPI's

• 2 WDI's (latched and pulsed)

Each of these inputs can be inverted or uninverted by clicking on the PWRGD=1 or FAULT=1 icon next to each input signal.

They can be enabled or disabled by clicking on the Enabled and Disabled icons. Function A and Function B can be inverted if so desired using the following buttons:

Note: To reset the contents of the current PLB window click the RESET PANEL button in the bottom right corner (Figure 43). All buttons will revert to disabled and inverted states and the PBDs will be set to 0ms.

Figure 43. Reset Panel Button
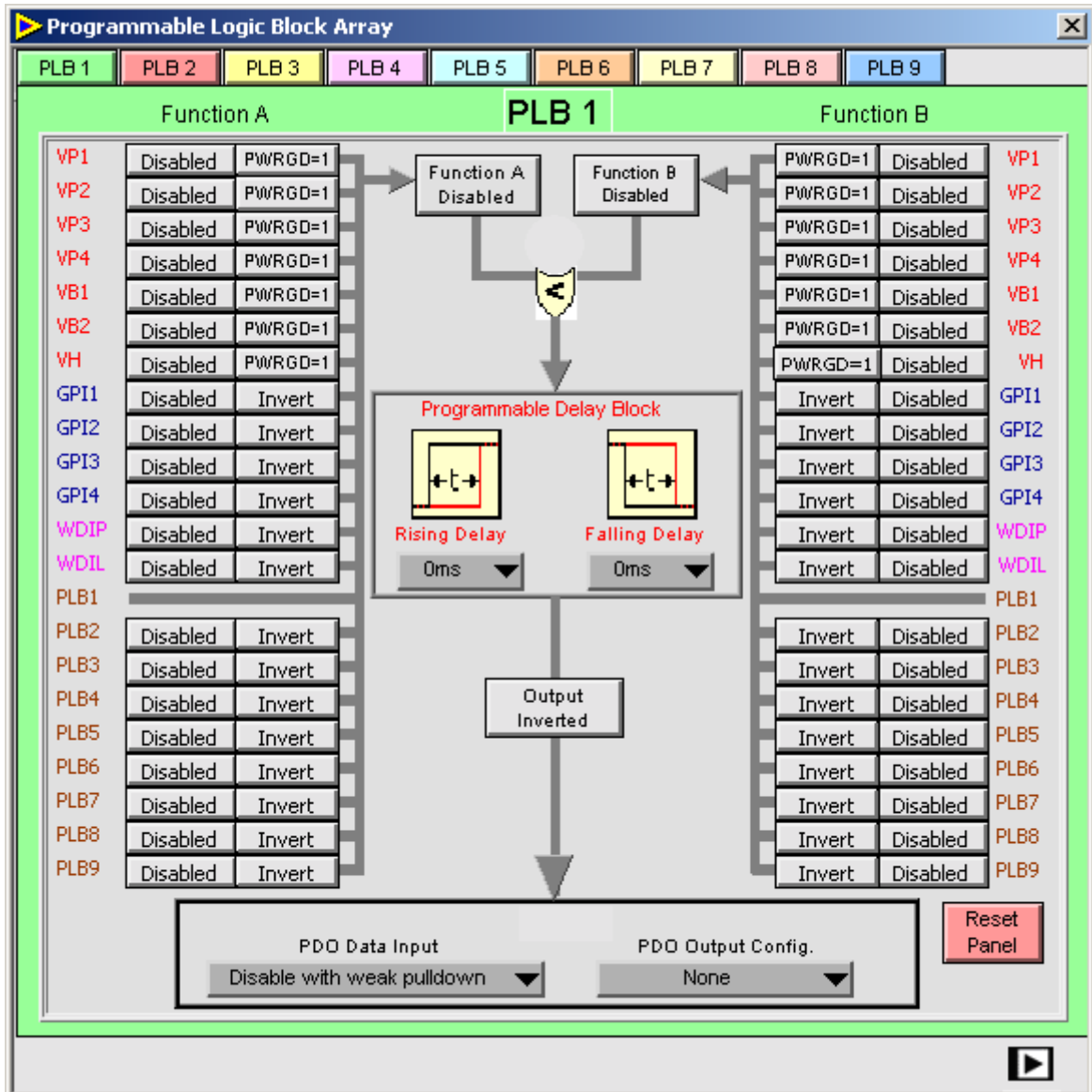
Figure 42. Programmable Logic Block Array Window

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PROGRAMMABLE DELAY BLOCKS

After Function A and Function B are OR-ed the signal passes through a delay block, where the user can delay the output of the PLB from asserting its PDO, or being used as an input to another PLB by up to 500ms. The delay can be placed on the rising edge and falling edge independently. The PDB timeout is programmed in the window shown:-
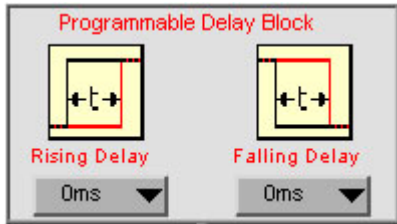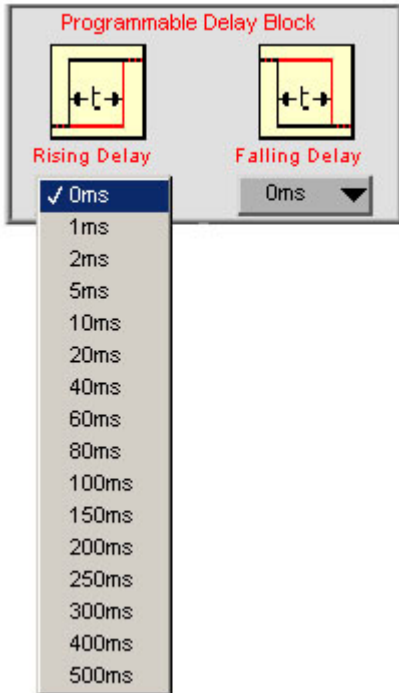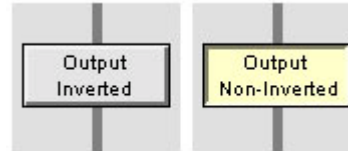

Figure 44. PDB Adjust Block

Figure 45. Setting the PDB timeout (Rising Edge)

INVERTING THE OUTPUT

The logic output of each PDB can be inverted/non-inverted using the following buttons :-

PROGRAMMABLE DRIVER OUTPUTS WINDOW

There are 9 Programmable Driver Outputs (PDO's) on the ADM1060. These can be used as POWER_GOOD, RE-SET, LDO Enable, or in the case of PDO's 1 to 4, as a high voltage (~11.5V) for the gate of an external FET. The PDO's can all be configured in the window inside the red border at the bottom of the PLBA window.

Selecting Data Input Type

The data driven onto the PDO can come from 3 different sources:-

PLB Data- the output of the Programmable Logic Block associated with a given PDO.

SMBus Data- the PDO output can be driven directly from the SMBus, enabling a microprocessor or controller to directly control the state of the output.

MCLK Data- the on board clock, used to generate the timeouts for the glitchfilters, PDB's etc, can be routed out on the PDO pin and measured.

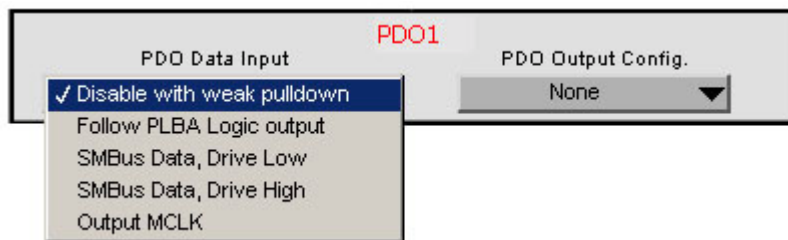The data type required can be selected in the PDO window as shown in Figure 46.

Figure 46. Selecting PDO Input Type

Selecting the pullup option on the PDO

The PDO's of the ADM1060 can be used as enable signals to LDO's, μP's, μControllers, DSP's etc. on a board. These functions may only be able to tolerate logic inputs at a level at or below their supply voltages. These supply voltages will be (most likely) supervised by the ADM1060 and available on- chip. Therefore, a feature has been provided where the external PDO's can be pulled up to a number of these voltages on chip. Alternatively, the PDO can be pulled up to an external voltage, not available on- chip. There are a number of pullup options:-

- **Weak Pullup to VH** (up to a max. of 4.5V)
- **Strong Pullup to VH** (better ability to drive more capacitive loads).
- **Weak/strong Pullup to VPn**
- **Weak/strong Pullup to VDD**
- **Pullup to charge pumped high voltage** (VFET- PDO's 1 to 4 only)

These options can be selected in the window as shown in Figure 47.
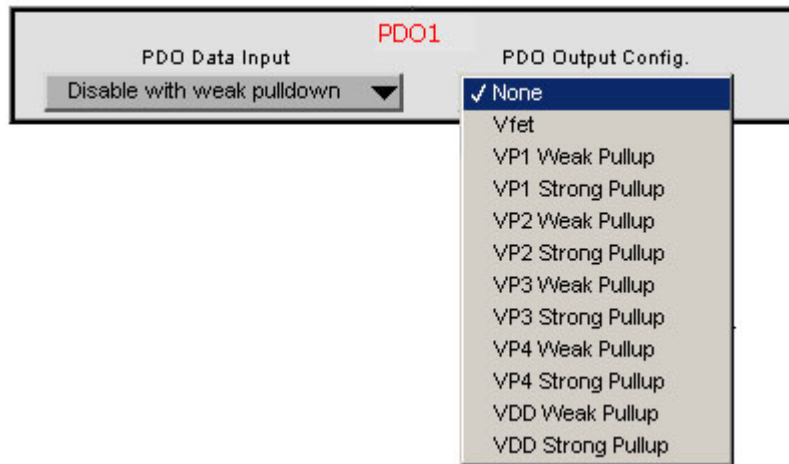
Figure 47. Selecting PDO Pullup Option

EVALUATION BOARD CONFIGURATION

Once the ADM1060 configuration has been set up in the configuration registers, the Evaluation Board can be used to verify that the settings in the configuration registers are correct, by emulating an in- system environment. The following is provided to stimulate the many functions of the ADM1060

7 DAC's to provide programmable (over the SMBus) supplies to the VH, VPn and VBn, thus enable testing of the Undervoltage and Overvoltage threshold and hysteresis settings in the configuration registers.

9 ADC's to measure and verify the voltage that each of the PDO's has been pulled up to when asserted/de-asserted .

4 Pin Drivers to drive each of the GPI's high and low.

1 On board programmable clock for verifying the Watchdog Detector functionality.

1 external LDO for verifying closed loop control of the ADM1060 over external devices.

All of the above functionality is configured in the **Evaluation Board Setup** Option under the **Evaluation Board Configuration** Menu (see Figure 48 below).

Selecting the option starts up the Evaluation Board Configuration window. There are 3 submenus which the user can select to enable all of the functions on the Eval board which are external to the ADM1060 itself. Each of these submenus is described in detail.

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VP,VH AND VB SETUP WINDOW

A DAC and amplifier is provided for each of the 7 voltages of the ADM1060. Figure 49 shows the relevent window. The DAC's can be programmed over the SMBus, thus enabling the user to set the input voltage. The user can program the voltage applied to a given input pin by typing the desired voltage into the relevent box. Different ranges are available for different input types:-

- VB1,VB2:- -6V to +6V

- VH:- 0V to 14.7V

- VP1,VP2,VP3,VP4:- 0V to +6V

Note: When using the above voltage outputs to supply the ADM1060, ensure that the switches in S1 (see table 1) are closed. The option is provided to connect external supplies to the input pins via connector J1 (see table 2). In this case, the relevant switch in S1 should be opened.
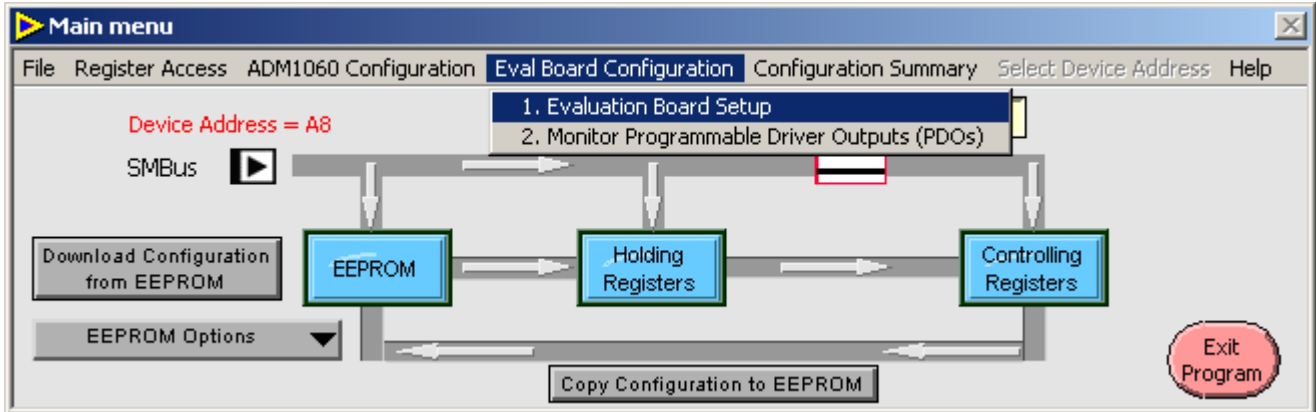
Figure 48. Starting Eval Board Configurat
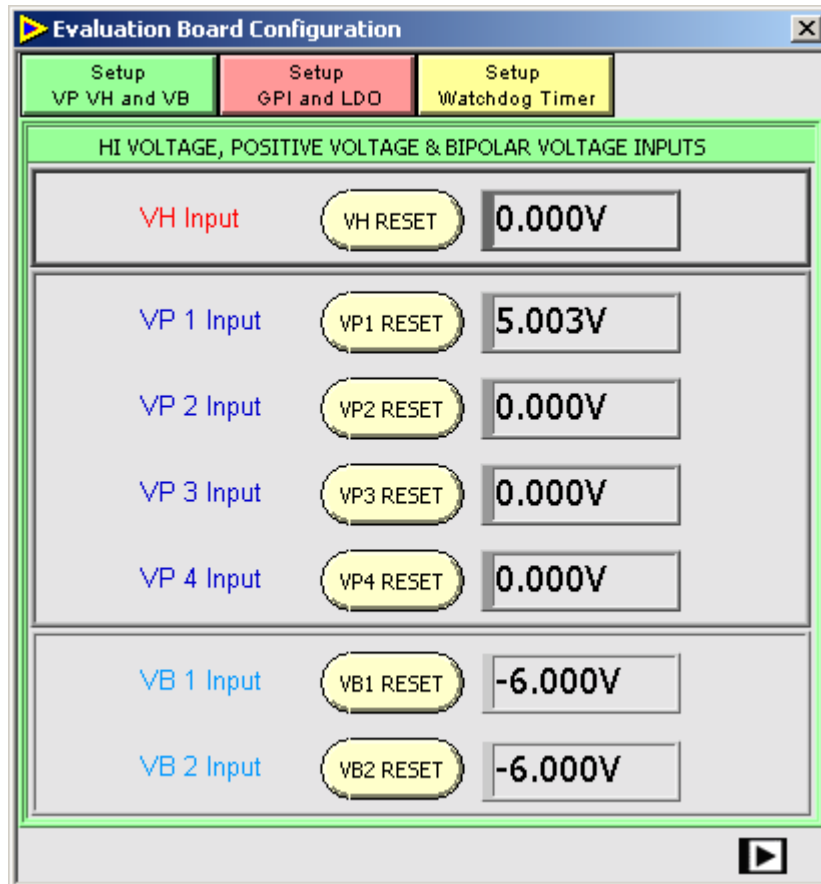
Figure 49. VH, VBn and VPn Voltage Setting Window

GPI AND LDO SETUP WINDOW

The ADM1060 has 4 General Purpose Inputs (described in datasheet). These can be driven by RESET signals, Manual Reset, PWR_GOOD etc. In order to simulate logic signals being applied to these inputs, 4 data lines are provided from the PC parallel port, one for each GPI. These are assessible via the window shown in Figure 50. The user can set the logic level applied to the device by clicking on the relevant button,

e.g. DATA 1 [0]. The button will toggle from 1 to 0 (high to low) and vice versa, indicating the level being driven on the GPI.

Each of the GPI's can be connected/disconnected from the ADM1060 via software. This is done by clicking the relevant

[switch symbol] button. Opening these switches allows the user to connect their own external signal to a GPI (via J1).
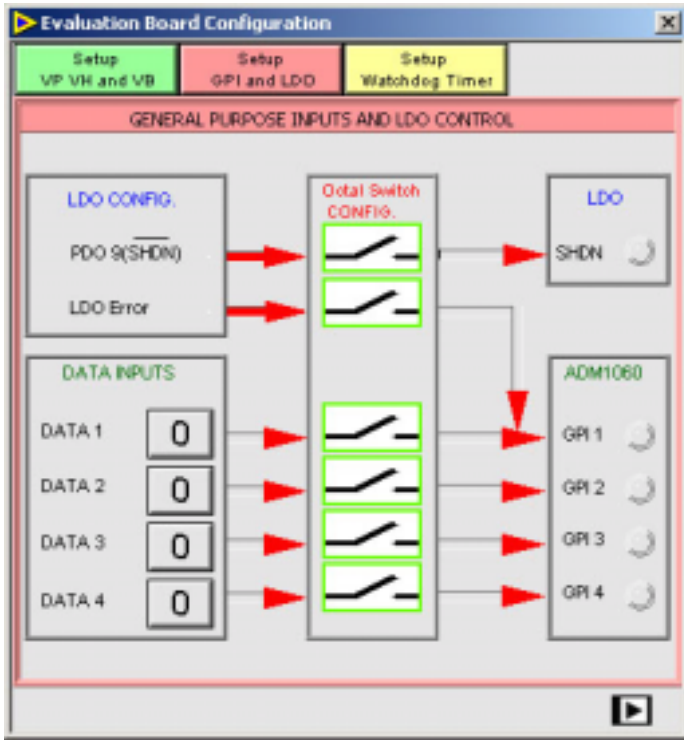
Figure 50. GPI input settings

LDO-ERR

An LDO is provided on the Evaluation Board to easily show the ADM1060 in a closed loop, system supervision operation. The input to the LDO is driven by the same supply connected to VP1. It's Enable is driven by PDO9 on the ADM1060 and its status pin, LDO-ERR is available as an input option to GPI1. Thus PDO9 and GPI1 form a closed control loop around the LDO. If its output goes out of regulation, causing it to assert LDO-ERR, this status can be seen on GPI1 and the ADM1060 could drive PDO9 low to disable the faulting LDO. The option to connect LDO-ERR

to GPI1 is provided in the GPI/LDO window. Clicking the switch symbol connects LDO-ERR and disconnects the PC data line.

Note: LDO Switch and Data 1 Switch cannot be selected at the same time. The software will flag a warning if the user tries to do this.

WDI WINDOW

The ADM1060 features a Watchdog Detector circuit, WDI. This is used to monitor processor clocks and asserts if there is no transition on the clock within the programmed timeout period. In order to verify this function the ADM1060 Evaluation Board feature a programmable clock generator on board. The window in Figure 51 controls this clock generator. The period of this timer can be programmed by sliding the Timing Bar to the required timeout, as shown below. The timeout can be up to 16 seconds long (approx.). This programmable clock can be connected/disconnected to the ADM1060 in the same manner as GPI's (ie) by clicking

the [switch symbol] button. Again, disconnecting this clock enables the user to apply an external clock to the WDI pin via the connector (J2).

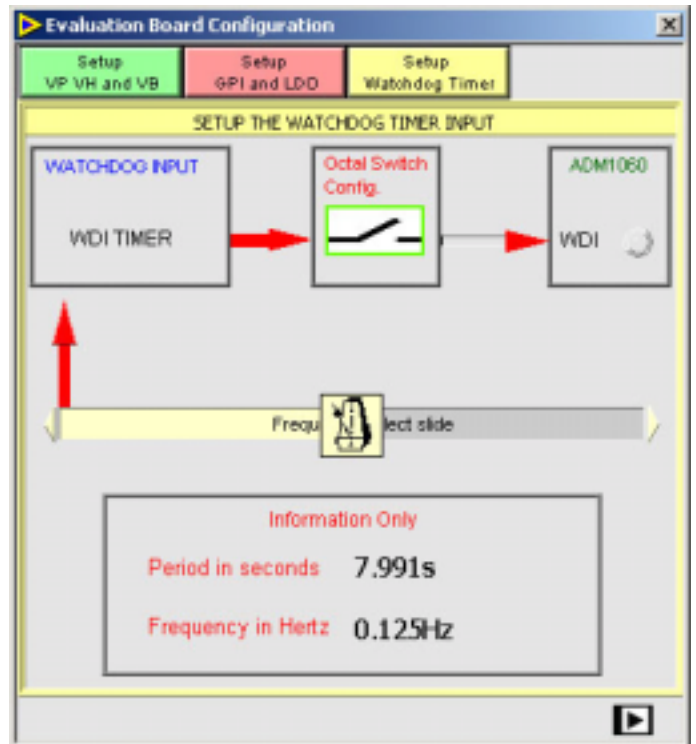*Figure 51. Setting the clock on the WDI*

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<div style="text-align:right">Preliminary Technical Data</div>

**Monitor Programmable Driver Outputs Window**

As explained in the datasheet the Programmable Driver Outputs (PDOs) of the ADM1060 can be configured to pull up to a number of different voltages both on- chip and off-chip. The ADM1060 Evaluation Board provides the facilty to monitor these voltages by providing an ADC for each PDO. The output of these ADC's is graphed in real time to show the user the output levels of all the PDOs.

To start the graphing of the PDOs click:

Press to
BEGIN Graph Update
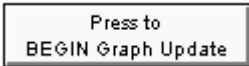
Click again to stop graphing.

To display the voltage on VDDCAP and VCCP click:

DISPLAY voltage at
VDDCAP and VCCP
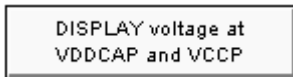
Click again to hide.

The user can choose which PDOs are plotted on the graph by placing a ticks beside the relevent PDOs in the panel shown in Figure 53. All unchecked PDOs will go to zero.

PDO 1	0.00	☑
PDO 2	0.00	☑
PDO 3	0.00	☑
PDO 4	0.00	☑
PDO 5	0.00	☑
PDO 6	0.00	☑
PDO 7	0.00	☑
PDO 8	0.00	☑
PDO 9	0.00	☑

Uncheck Box to reduce trace to zero

Figure 53. Select PDOs to plot

An X-Y grid can be applied to the plot window background by ticking the following box:
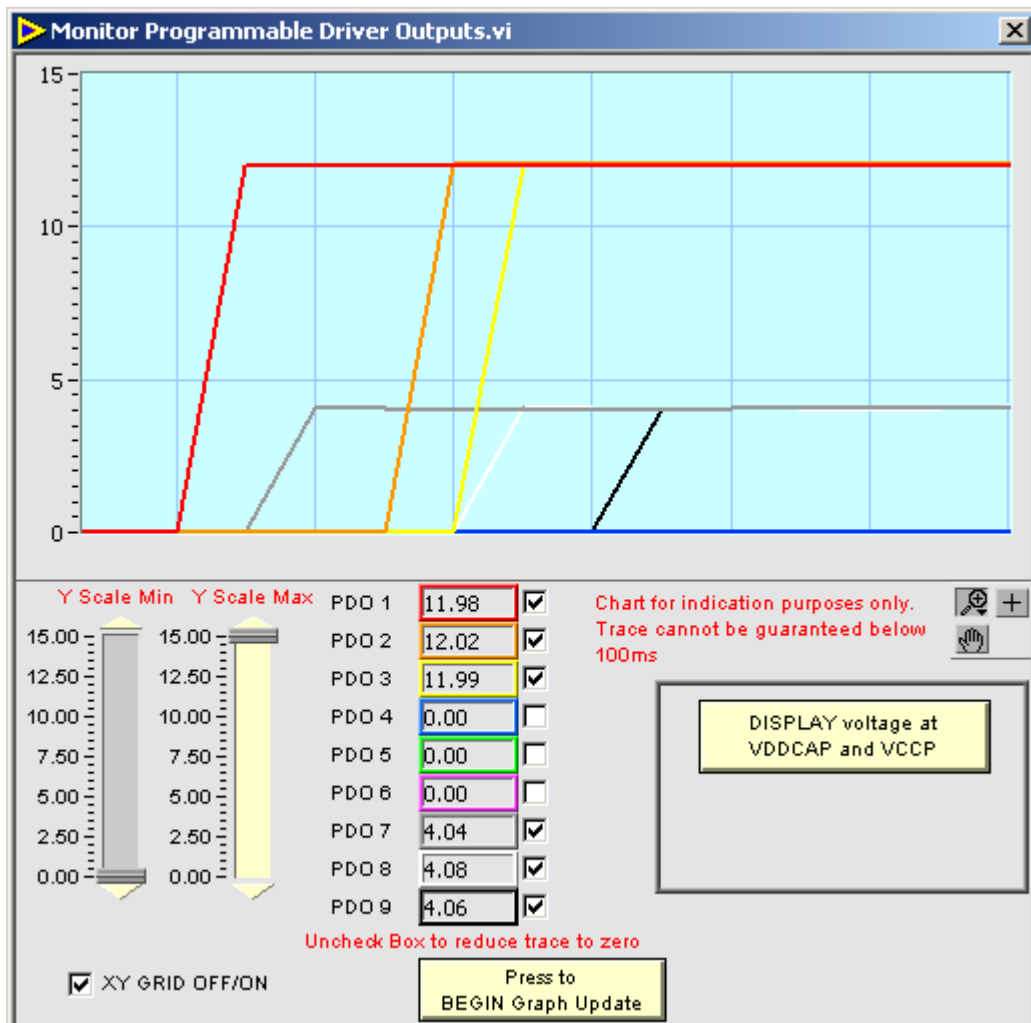
☐ XY GRID OFF/ON

Figure 52. Monitor Programmable Driver Outputs Window

The two sliders in Figure 54 are used to alter the range on the Y-axis. The slider on the left sets the minimum Y-axis value and the slider on the right set the maximum Y-axis value.
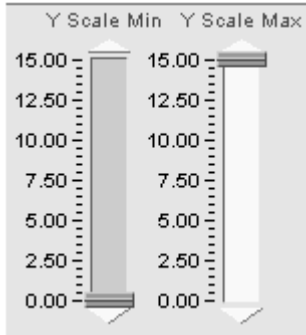

Figure 54. Select PDOs to plot

The user can manipulate the graph using the small red graph menu on the right of the window:-

Figure 55. Graph Menu

The ⊞ symbol selects normal mode.

The 🖑 allows the user to navigate around the plot area by clicking and dragging the plot area.

The Zoom sub-menu is available by clicking the 🔍 symbol:-
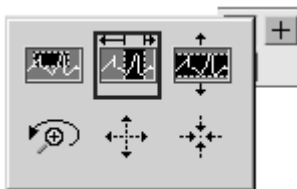
Figure 56. Zoom Sub-menu

These symbols perform the following tasks:-

: Zoom by rectangle.

: Zoom by rectangle. Zooming restricted to X data only.

: Zoom by rectangle. Zooming restricted to Y data only.

: Undo last zoom.

: Zoom IN about a point. Holding down the button will cause the graph to continuously zoom until released.

: Zoom OUT about a point. Holding down the button will cause the graph to continuously zoom until re leased.

CONFIGURATION SUMMARY

The ADM1060 Software can generate a summary of the current setup. Select *Configuration Summary* on the Menu Bar and then click *Show Summary*. All windows are opened one by one. A snapshot of each window is taken and pasted into the summary window at the end. Here, the user can view all windows simultaneously.
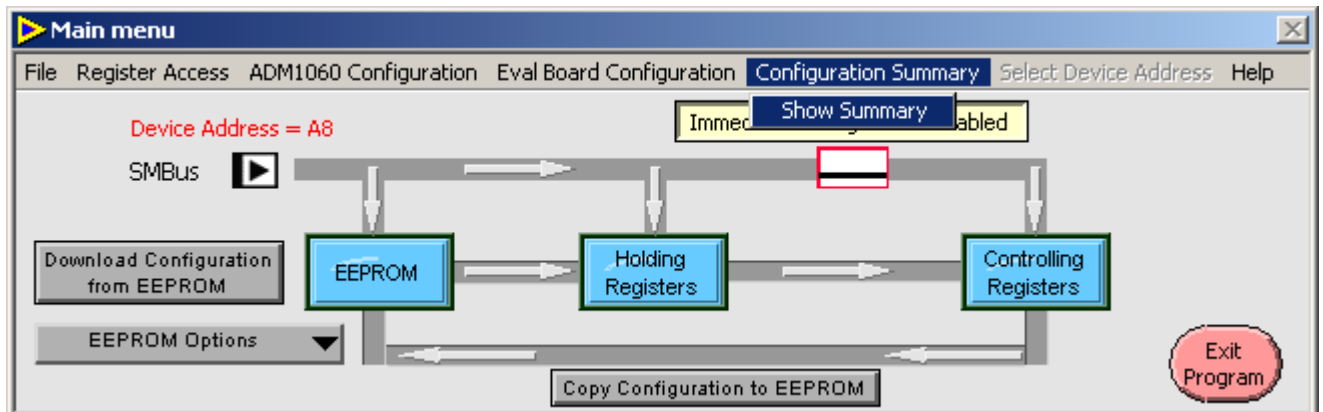

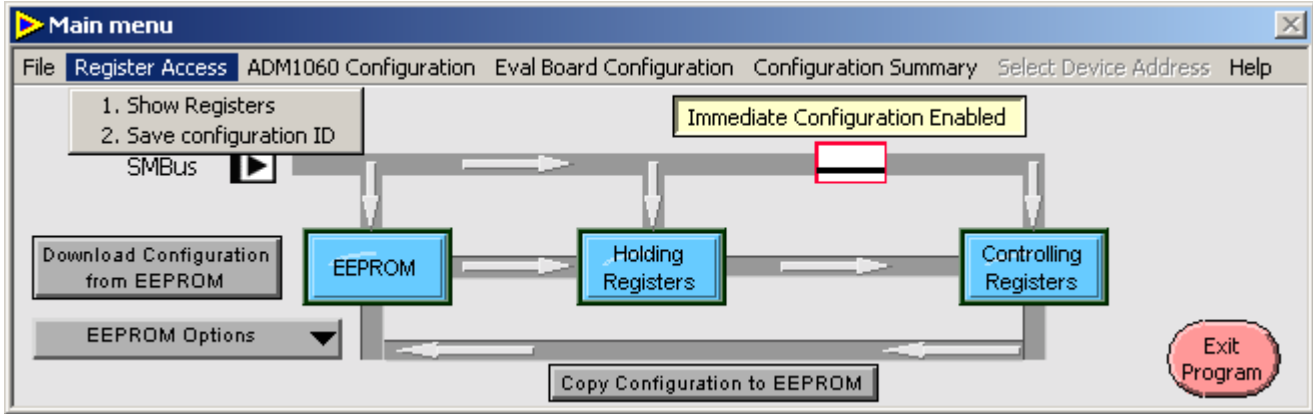*Figure 57. Selecting the Configuration Summary from the Menu Bar*

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Figure 58. Selecting the Register Access from the Menu Bar

REGISTER ACCESS

The ADM1060 can be programmed manually via its registers. (The state of the registers can also be viewed in this way.) To do this select *Register Access* on the Menu Bar and click on *Show Registers*. The Register Window then appears (see Figure 59). The user can manually change the contents of the registers by selecting a register and clicking between *0* and *1* for the various bits of that register. Some registers have corresponding windows that can be launched by clicking the *Ok* button at the bottom of that window. When a corresponding window is open all changes to the register will be reflected in the window settings and vice versa.
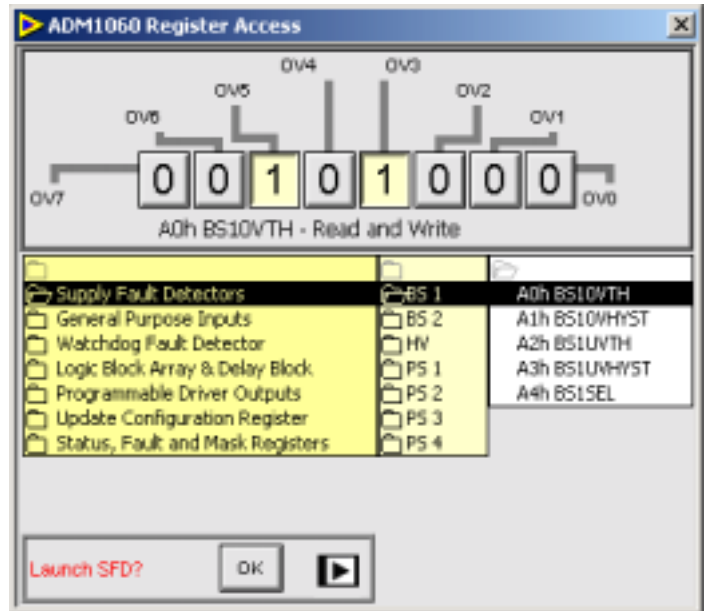
SAVE CONFIGURATION ID

To select this option choose *Register Access* on the Menu Bar and click on *Save Configuration ID*. In the window that appears (see Figure 60) the user can set the 16 bits of the Mark 1 and Mark 2 registers by clicking on individual bits. The registers are updated when the *Press To Write Data* button is clicked. This code will also be recorded in a factory settings file when one is saved. A unique code in these registers can be useful in identifying software and preprogrammed devices.
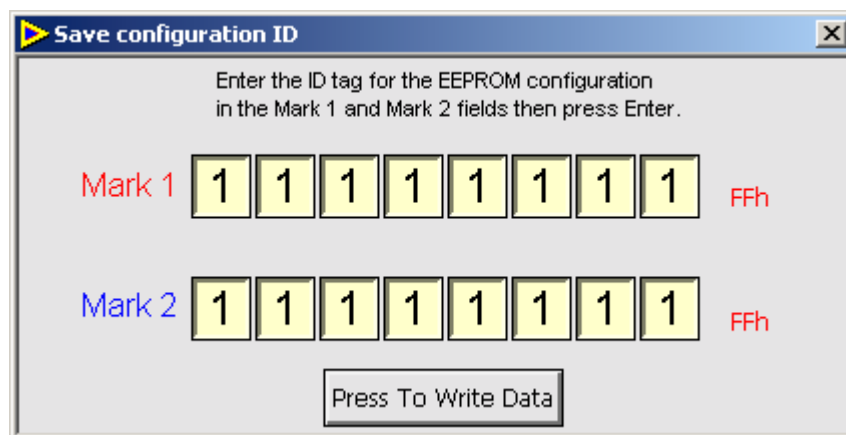

Figure 59: Register Access Window

Figure 60: User Software ID Stamp

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FILE MENU

The user can save their current configuration for the ADM1060 and the Eval Board whether or not the board is active. A previous configuration can be recalled at a later time.

If the software is running with an active ADM1060 device connected then options 1 and 2 will be available.

1. Save Settings to file.

This allows the user to save the current configuration to a file. Click *1. Save setting to file* on the *File* menu to select this option. The following screen should then appear:
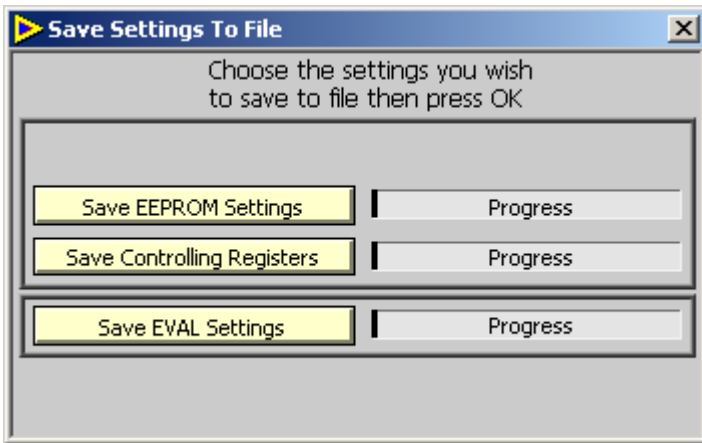

Figure 60: Save Settings To File

The user can choose to save the current EEPROM settings, the current controlling register settings or the current EVAL settings to file by clicking the appropiate green button followed by *Ok*. The user is then prompted to enter a file name and preferred location (a default location will be selected) before the data is saved (as a .txt file). The progress of the save is monitored on the progress bars.

When the Save *EEPROM Settings* button is pressed a new option appears above it (Figure 62). This button allows the user to save a different type of file, known as a factory file. Make sure that this new button is clicked before pressing *Ok* to save a factory file. A factory file with extension .fac will be saved with the same name entered for the .txt file. This file must be sent to Analog Devices to preprogram ADM1060 devices for users that require this function. (Please conact Analog Device for more information on this process.)
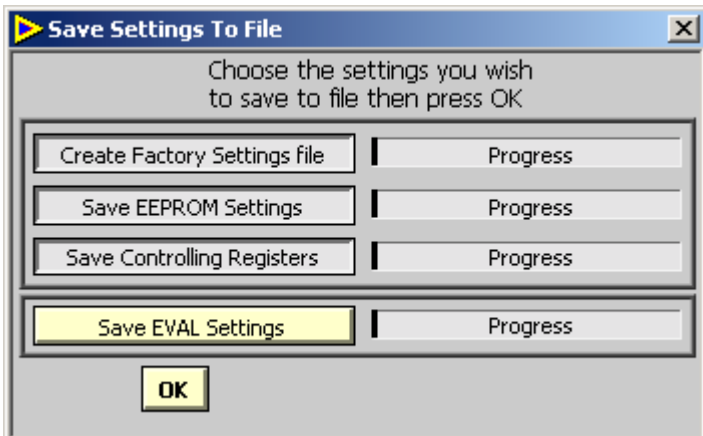

Figure 61: Save Factory Settings File

2. Recall Settings from file.

This allows the user to recall a previous configuration and load it into ADM1060. Click *2. Recall settings from file* in the *File* menu to select this option. The following screen should then appear:
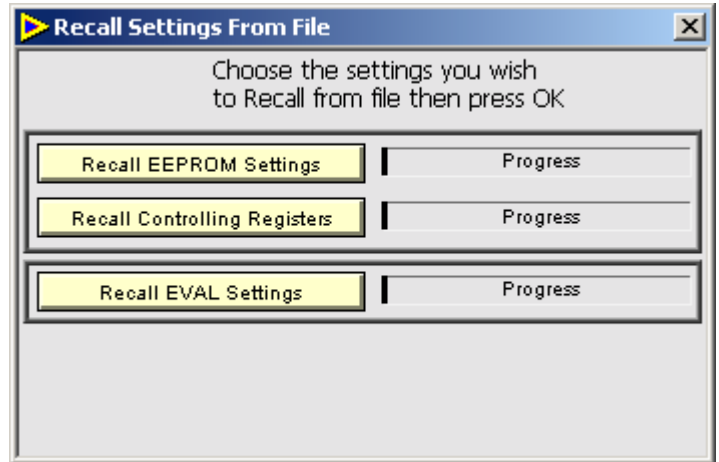

Figure 62: Recall Settings From File

The user can choose to recall the current EEPROM settings, the current controlling register settings or the current EVAL settings to file by clicking the appropiate green button followed by *Ok*. The user is then prompted to enter a file name and location from which the settings are to be recalled from. The progress of the recall can be monitored on the progress bars. All windows automatically update once a file has been recalled recalled.

If the software is running in offline mode, i.e. without an active ADM1060 device connected, then options 3 and 4 will be available.

3. Save Off-Line Settings to file.

This allows the user to save the current configuration to a file. Click *3. Save Off-line settings to file* in the *File* menu to select this option. The following screen should then appear:
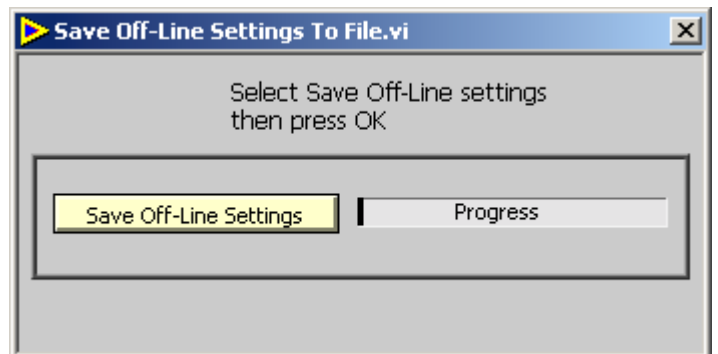

Figure 63: Save Off-Line Settings To File

The user can save the pseudo configuration register data (only) to file by clicking the green button followed by *Ok*. The user is then prompted to enter a file name and preferred

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location before the data is saved. The progress of the save is monitored on the progress bars.

4. Recall Off-Line Settings to file

This allows the user to recall a previous configuration and load it into ADM1060. The following screen should then appear when *4. Recall Off-Line Settings From File* is selected:
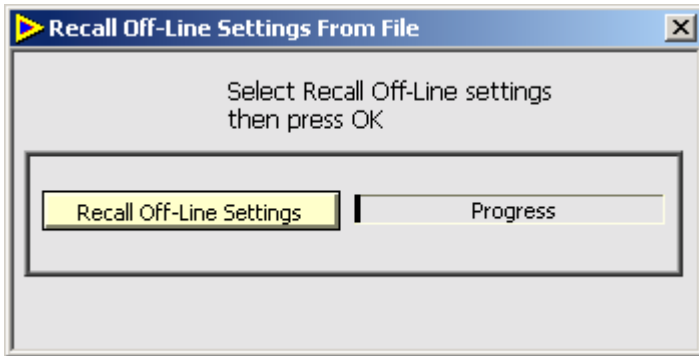

Figure 64: Recall Off-Line Settings To File

By clicking *Recall Off-Line Setting To File* the user can choose a file to recall to the ADM1060.

Note: .fac files may not be recalled with option 2 or option 4 above.

Automatic Compare Function

When recalling the EEPROM settings from file (on-line mode only) the software does an automatic compare of the Configuration EEPROM settings to the Checksum value of locations 00 to DF saved when the file was created. The purpose of this is to prevent the creation of an incorrect file. If there is a mismatch the following warning will appear:-
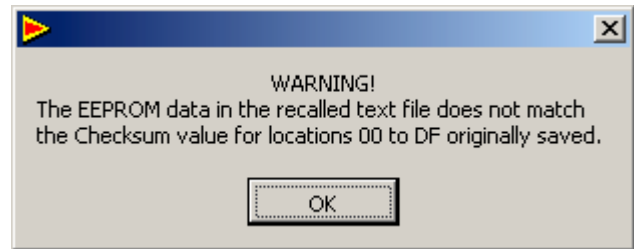

Figure 65: Warning

The reason this warning dialog box will appear is because the text file may have been manipulated by the user and not correctly saved. To rectify this problem re-save the file using the Save Settings To File window (See figure 60), remembering to click on all three fields.

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Translating files from pre-version 3 software to current version in three simple steps:-

Files saved using pre-version 3 software must be translated into files compatible with version 3 software. This can be done in three simple steps:

Step1: Make sure the ADM1060 Evaluation board is connected to the PC and powered up. Open the ADM1060 version 2 software. From the file drop down list select *6. Translate Pre-version 3 file to NEW.*
Note: This option is only available at the start of the program and is disabled once the SFD window has been opened.

Step 2: The Open file dialog box of figure 66 will appear. Use this window to navigate to the file that needs to be translated (Pre-version 3 file). Click *Open* when ready.
The progress bar of Figure 67 will appear. The software is now automatically converting the old file to the new file format.

Step 3: The dialog box of figure 68 will appear after conversion and ask the operator to save the new file. Once the file is saved the window will close and the conversion is complete.
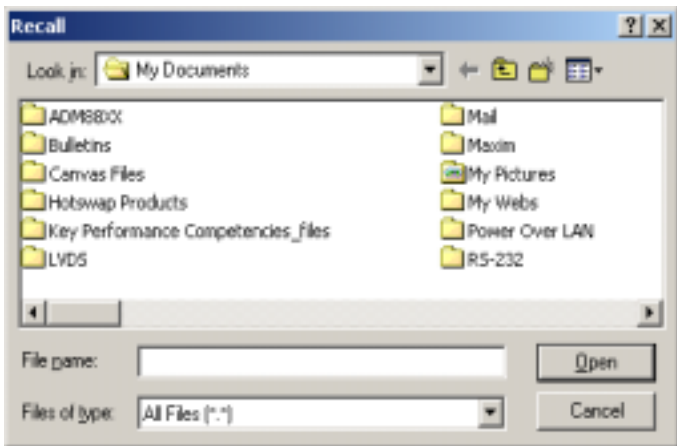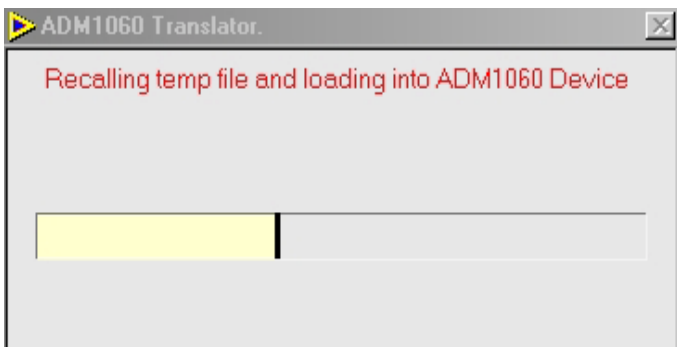

Figure 66. Recall file to translate

Figure 67. Recalling progress bar