1. Kit Components

Item	Qty.	Description
LMP92001 Eval Board	1	Device evaluation board
SPUSI2	1	USB interface board purchased separately at: http://www.national.com/store/view_item/index.html?nsid=SPUSI2

2. Software Installation

TinyI2CSPI software, and LMP92001 specific Personality Files, can be obtained from the National Semiconductor Corp. website. Use the link below to download the self extracting archive and the installation manual.
http://www.national.com/analog/webench/sensors/spusi2
Follow the instructions and install the software in the Windows XP environment.
When connecting SPUSI2 for the first time to your PC the operating system will attempt to install the appropriate drivers. Follow the instructions on the screen and allow the wizard to automatically search for required driver files.

3. Kit Assembly

Equipment needed to conduct basic functionality tests:

- 5V power supply
- DC Voltmeter

Assemble the kit as follows:

- Connect 5V power supply (power off) to +Vsupply and GND banana sockets
- Connect the SPUSI2 dongle to the LMP92001 Eval Board 14-pin header marked GPSI-14 (watch the alignment, the Eval Board connector is actually 16-pin, see picture below for correct alignment)
- Connect USB cable between host PC and the SPUSI2 dongle

Figure below shows the complete assembly:

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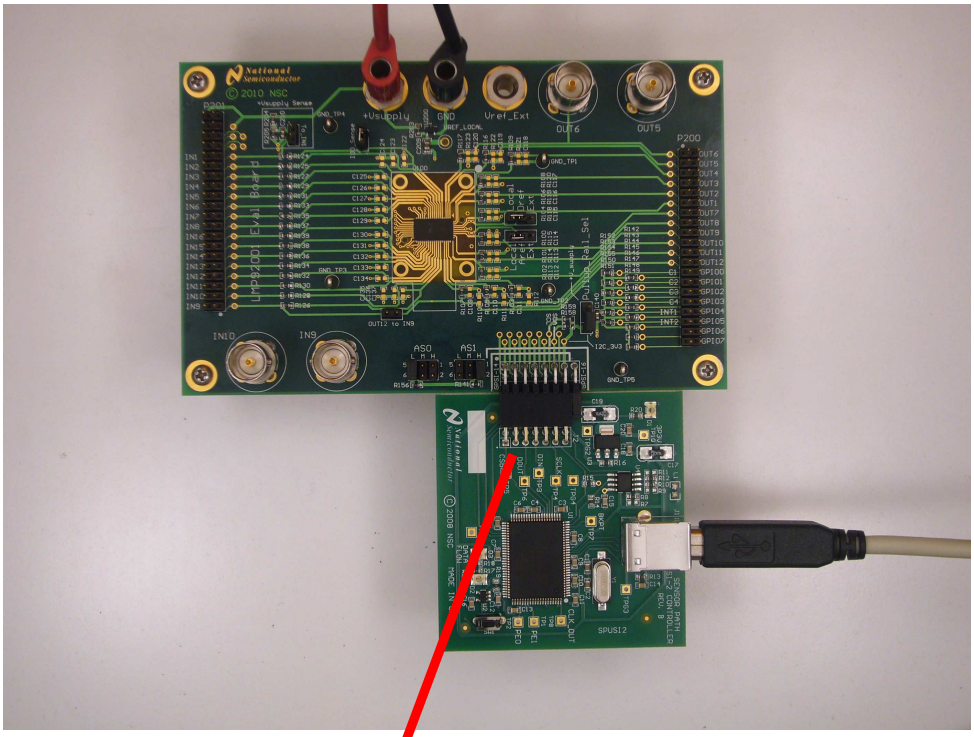
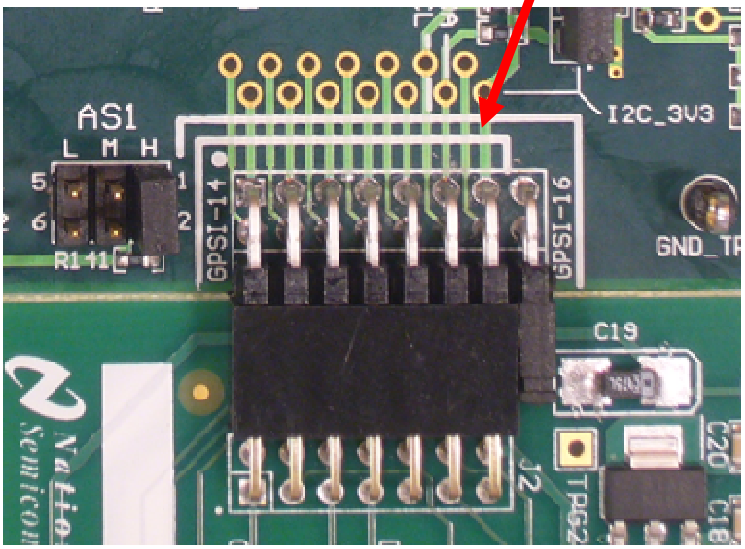



AS1
L M H
I2C_3V3
GPSI-14
GPSI-16
R111
C19
J2

4. Default Set-Up and Power-Up

Verify the following default jumper settings on the Eval Board (these should already be factory set):

Jumper block	Shunt position	Function
IDD_sense	in	This header allows for measurement of supply to the DUT (only to the DUT). This header should have a shunt installed
DREF	Local,DREF	Selects a locally generated 4.1V voltage as the reference input to the DUT's DACs (DUT by default uses off-ship reference source)
AREF	Local, AREF	Selects a locally generated 4.1V voltage as the reference input to the DUT's ADC (DUT by default uses off-ship reference source)
Pullup_Rail_Sel	I2C_3.3	Selects the 3.3V potential generated by the I2C interface dongle as the GPIO, INT[2:1] pull-up rail.
AS1	H	Sets the upper address bit of the DUT's I2C bus address
AS0	L	Sets the lower address bit of the DUT's I2C bus address. **NOTE: The factory set address is AS1,AS0=H,L which corresponds to I2C address 0x4C**

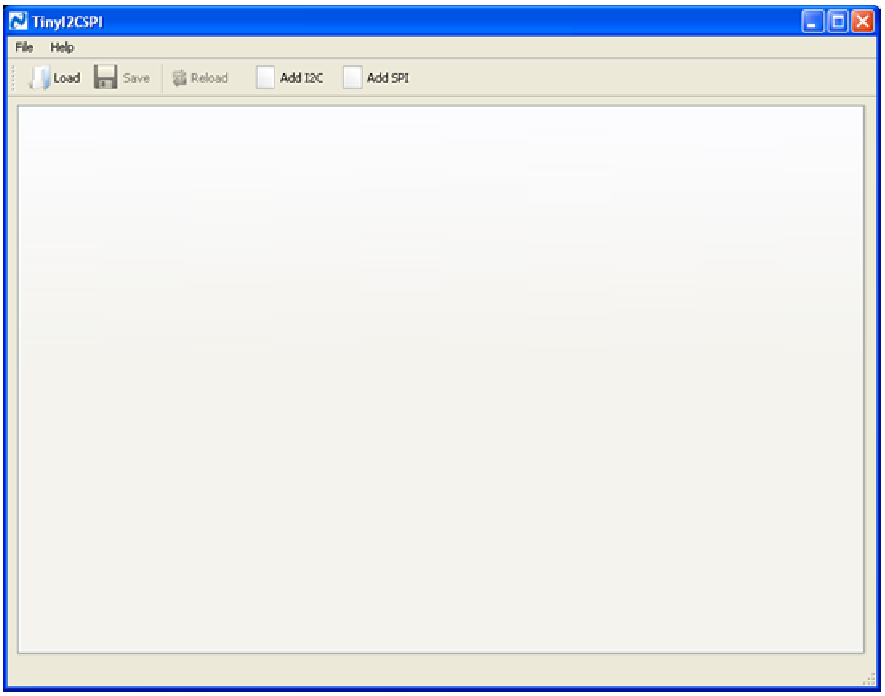
Once the above jumpers are in place, turn on the 5V power supply

5. TinyI2CSPI User Interface Software

Start TinyI2CSPI User Interface software (START->TinyI2CSPI->RunTinyI2CSPI)

NOTE: Currently on some systems the software does not start properly using method described above: a command window flashes on the screen momentarily, but GUI never starts. If this occurs in your system start the software by START->TinyI2CSPI-> TinyI2CSPI Environment. This will open a command window. At the prompt:
C:\...\TinyI2CSPI> **cd dist**
C:\...\TinyI2CSPI \dist\> **tinyi2cspi.exe**
This will launch the GUI

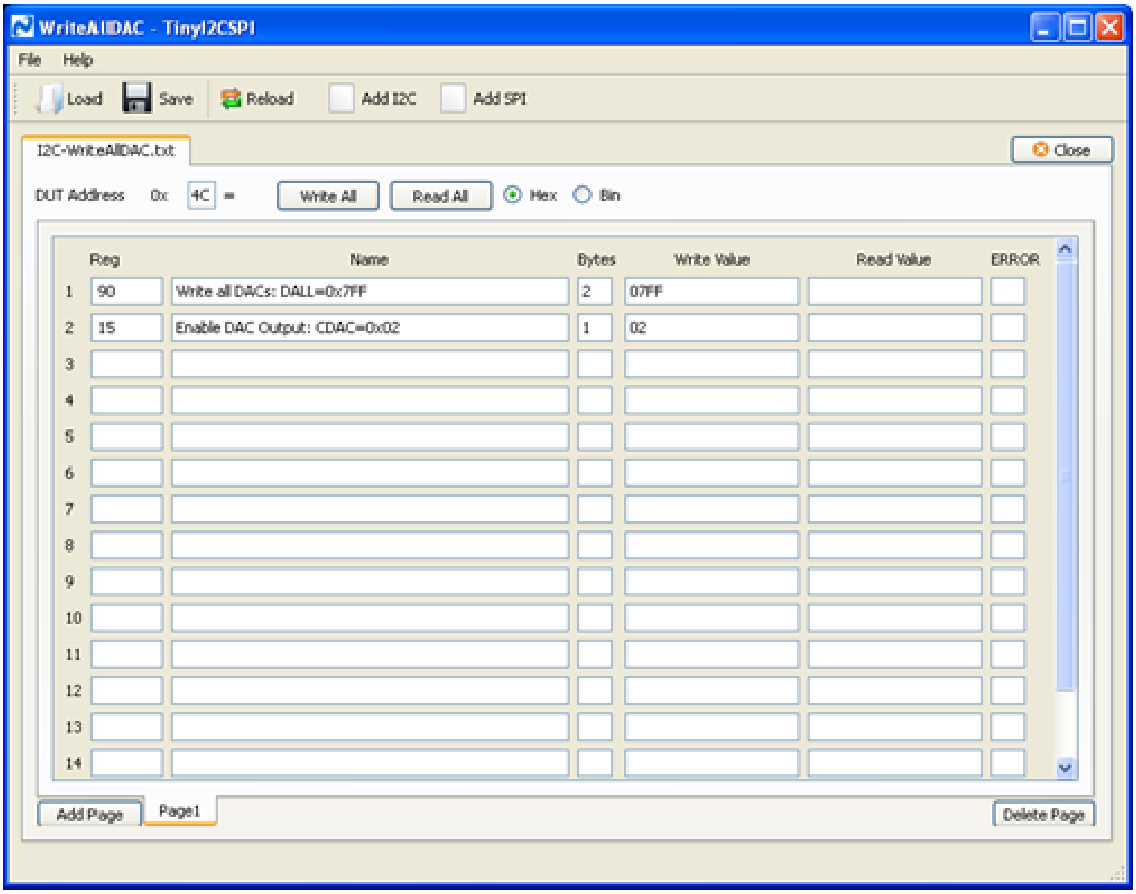
The initial screen will look as below:



Use the **Load** button to select and load personality files. Or use **Add I2C** to open new I2C interface command window and enter your own sequences.
NOTE: Personality files are text files containing I2C bus sequences. The files are either available for download from the TinyI2CSPI Software web page, or are provided in the archive containing this document.

6. Quick example

Load in the WriteAllDAC.txt personality file. The screen will look as follows:



Note the DUT address 0x4C (as set on the Eval Board, see sec. 4 of this manual). Executing this script will send data to DUT register address 0x90 (updates all on-board DAC registers to ½ scale), and will disable the OFF bit in CDAC register i.e. all DAC outputs will be activated.
Press **Write All**. Successful transaction will cause items in the ERROR column to turn GREEN or display 'OK' string
Use the voltmeter to check the output voltages at all OUT1 through OUT12 pins: 2.05V (approx)
NOTE: Personality files provided with this product may have extensions tpf or txt

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