**Quick Start** 

DEMO DA1x05 Demonstration Board for DAC1405D650

Rev. 2.0 — 2 July 2012

**Quick Start** 

Info	Content
Keywords	DEMO DA1x05, PCB2073-1, Demonstration board, DAC, Converter, DAC1405D650
Abstract	This document describes how to use the demonstration board DEMO DA1x05 for the digital-to-analog converter DAC1405D650.
Overview	0 0



#### **Revision history**

Rev	Date	Description
2.0	20120702	Rebranded.
0.1	20090129	Initial version.

# 1. Quick start

### 1.1 Setup overview

Figure Fig 1 presents the connections to measure DEMO DA1x05.



# 1.2 Power supply

Table 1. Generation	I power	supply
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Name	Function	View
U1	PWR – General power supply 7.5V $V_{DC}$	U1 () ()
TP1	5V0A test point – Analog power supply 5.0 $V_{\text{DC}}$	
TP3	3V3A test point – Analog power supply 3.3 $V_{\text{DC}}$	
TP7	1V8A test point – Analog power supply 1.8 $V_{\text{DC}}$	
TP5	3V3IO test point – I/O power supply 3.3 $V_{\text{DC}}$	
FP9	1V8A test point – Analog power supply 1.8 $V_{\text{DC}}$	
TP2, TP4, TP8, TP6, TP10	GND test point – Ground	TP6 COLOR SUB S00 S00 TP5 TP10 COLOR DEMO DA1x05 PC82073-1
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# 1.3 Digital inputs

## Table 2. Digital inputs

Name	Function	View
TB2	I data connector – Channel I digital input (I0 to I13)	👭 🚺 J14
TB1	Q data connector – Channel Q digital input (Q0 to Q13)	
J16	CLK connector – DAC clock input	
J14	LO connector – AQM LO input	
Resistor network	DAC output connected to the output transformers	Resistor network Store
	DAC output connected to the AQM	

# 1.4 Analog outputs

## Table 3. Analog outputs

Name	Function	View
J17	IOUTAP connector – DAC channel A analog output signal (positive analog output signal when IOUTAN is used)	
J18	IOUTAN connector – DAC channel A negative analog output signal	
J13	IOUTBP connector – DAC channel B analog output signal (positive analog output signal when IOUTBP is used)	
J19	IOUTBN connector – DAC channel B negative analog output signal	
J15	RFOUT connector – AQM analog output	DEMO DA1x05 PCB2073-1

**TRANSPORTATION** 

## 1.5 SPI interface

### Table 4. SPI interface

Name	Function	View
BP1	RESET button – Hardware reset of the DAC registers	J2
J1	SPI test point – External connection to SCS_N, SCLK, SDIO and SDO	
J2	SPI connector – USB input for SPI programming	

# 2. Example

## 2.1 Setup example



Fig 2. DAC1405D650 hardware setup

# 3. SPI quick start

### 3.1 Install

Step 1

Connect the device to a USB port on your PC. Windows '**Found New Hardware Wizard**' will be launched. Select '**No, not this time**' from the options available and then click '**Next**' to proceed with the installation.



### • Step 2

Select 'Install from a list or specific location (Advanced)' as shown below and then click 'Next'.

Found New Hardware Wizard				
	This wizard helps you install software for: EVAL232 Board USB <-> Serial If your hardware came with an installation CD or floppy disk, insert it now. What do you want the wizard to do?			
	<ul> <li>Install the software automatically (Recommended)</li> <li>Install from a list or specific location (Advanced)</li> <li>Click Next to continue.</li> </ul>			
	< <u>B</u> ack <u>N</u> ext > Cancel			

Select 'Search for the best driver in these locations' and enter the file path of the folder 'driver\_2xx' in the combo-box ('C:\driver\_2xx' in the example below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click 'next' to proceed.

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM)
Include this location in the search:
C:\driver_2xx Browse
O Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< <u>B</u> ack <u>N</u> ext > Cancel

### • Step 4

Windows should then display a message indicating that the installation was successful. Click '**Finish**' to complete the installation for the first port of the device.

Found New Hardware Wizard			
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: USB Serial Converter		
	< <u>B</u> ack <b>Finish</b> Cancel		

The Found New Hardware Wizard will continue by installing the USB Serial Converter driver for the second port of the device. The procedure for installing the second port is identical to that for installing the first port from the first screen of the Found New Hardware Wizard.

Once the second port is installed, the device should be ready to be used.

## 3.2 SPI interface

### • Step 1

Install the LabVIEW Run-time Engine (if not already installed).

### • Step 2

Start the LabVIEW application "DAC1x05.exe".



Click on the '**run continuously**' button, program each register using the buttons in the clusters, then click '**send**'. The registers are now programmed.

The page COMMon-PHINCO allows to adjust the main settings of the DAC1x05D650.

The page DAC\_CFG allows to adjust the gain and the digital offset of each DAC.

The page DAC\_AUX allows to adjust the current of each auxiliary DAC.

The page DAC\_current is only for debug and should not be used in the application.

Load excel

A file with all the pattern can be loaded directly via the SPI interface. The file '**Initial.xIs**' is an example of file with the default configuration.

🔀 DAC1x05.vi	_ 8 ×
Eile Edit Operate Iools Window Help	
COMMon - PHINCO DAC_CFG DAC_AUX DAC_current load excel read	<b>•</b>
C:\Documents and Settings/nop11461/Desktop/fichiers xl\37_registers1.xis	
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#### Read

In the read page, click on '**read**' and the register's value will be displayed in the '**registers**' fields. You can also read one register by writing its address in '**address**' field.

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<u>File Edit Operate Tools Window Help</u>			
* Z 🕘			
COMMon - PHINCO DAC_CFG DAC_AUX DAC_current	load excel read		
read			
Teau	Register Name	registers	
	COMMon		
ADDRESS VALEUR	TXCFG		
€)x0 xcc	PLLCFG	xcc	
	FREQNCO_LSB		
	FREQNCO_LISB		
	FREQNCO_UISB		
save	FREQNCO_MSB		
3870	PHINCO_LSB	xcc	
	PHINCO_MSB	xcc	
	DAC_A_Cfg_1		
	DAC_A_Cfg_2		
	DAC_A_Cfg_3		
	DAC_B_Cfg_1		
	DAC_B_Cfg_2	xcc	
	DAC_B_Cfg_3		
		xcc	
	PLL_Test		
	DAC_Test_0	xcc	
	DAC_Test_1		
	DAC_Test_2	Acc .	
	DAC_Test_3	Acc .	
	FunctionalTest	Acc .	