a

AD6620 Evaluation Board Manual

Introduction

The following document describes the operation of the AD6620 evaluation board. In addition to the board, two software programs are also utilized. The first program is the Control Software, AD6620.exe, described in this manual.

The second program is Analog Devices' AD6620 Filter Design Software, Fltdsgn.exe, documented in "Designing Filters with the AD6620". This software assists the user in designing digital filters that are optimized for use with the AD6620. The files generated (sample rates, data rates, etc.) with the AD6620 Filter Design Software can then be downloaded to the AD6620 Evaluation Board with the Control Software.

Control of the AD6620 Evaluation Board

Control of the AD6620 Evaluation Board occurs through the PC's Parallel (Printer) Port. For valid data transfer and control, the PC Parallel Port must be IEEE-1284 compatible in bidirectional mode. This should be no issue with newer PCs. If you are unsure how your PC is configured, consult your manual for information on running the BIOS setup program. If you have more than one port, it is recommended that you disconnect any printers connected to your PC before running the software for the first time, or if you change the port where the board is connected.

Quick Start

Once the hardware and software are installed, three script files are available to quickly configure the boards. These files are installed in the same directory as the code (default: C:\Program Files\SoftCell\Ad6620) and are found under the names of ad6600.svr, ad6640.svr, and ad6644.svr. . If you are using the AD6600, a floating point ADC, use the file AD6600.svr. If you are testing with a normal Analog to Digital Converter (ADC) such as the AD6640, then use the AD6640.svr file. To run the script, start the AD6620 Monitor-Control program and click 'RUN' from the controller. Then use the common dialog box to locate the selected script file to run. Then click 'Open'. This will configure the evaluation board and take two Fast Fourier Transforms (FFT's), one directly from the ADC and the other from the AD6620. For information on scripting see additional information in the sections that follow.

Overview of the AD6620 Evaluation Board

The AD6620 is Analog Devices' high-speed diversity Receive Signal Processor (RSP). The function of the AD6620 is to bridge the gap between high-speed ADCs and General Purpose DSPs in receiver applications. The high resolution Numerically Controlled Oscillator (NCO) allows a single carrier to be selected from a high-speed data stream. High dynamic range decimation filters with a wide range of decimation rates allow both narrowband and wideband carriers to be extracted. The RAM-based architecture allows easy reconfiguration for multi-mode applications. See the AD6620 Data Sheet for more detail on the chip.

As shown below (Figure 1), the AD6620 Evaluation Board is configured to connect directly to a high-speed ADC evaluation board (AD6600, AD6644, AD9042, and others). The ADC data (Hi Speed Data) is latched and feeds the AD6620 input directly. The AD6620 accepts data up to 67 MSPS. The AD6620 then allows the user to tune a single carrier and digitally filter the channel. The output of the AD6620 is then available real time at the on-board Header. The Header allows connection of the AD6620 data to a user DSP or microprocessor for processing. Alternately, up to a 32K* data record of AD6620 data can be captured in the on-board First-In, First-Out (FIFO) buffer memory and then downloaded to the PC for further processing.

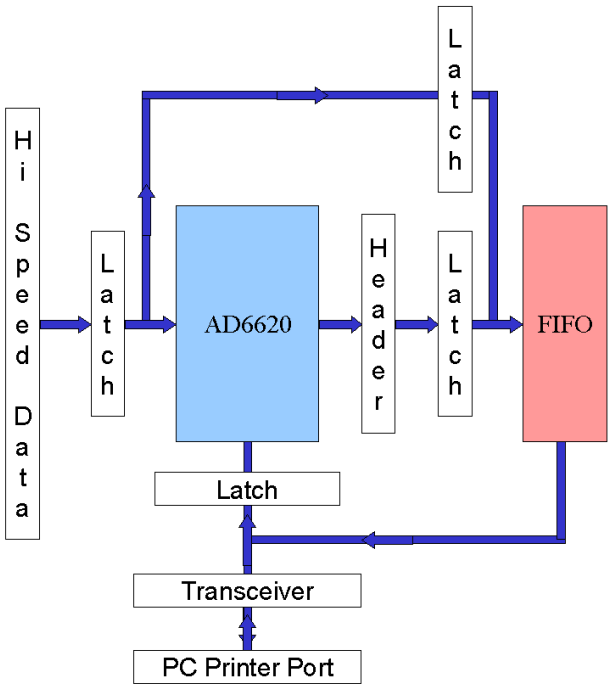


Figure 1. AD6620 Evaluation Board Block Diagram.

A second mode for the board is the Bypass Mode. In the Bypass Mode, the AD6620 is bypassed. This allows up to 64K* of the ADC data (Hi Speed Data) to be latched twice and fed directly to the FIFO. The ADC data in the FIFO can then be downloaded to the PC for processing. The Bypass Mode allows testing of the ADC and the setup in general. The Bypass Mode and the AD6620 Mode can not be used simultaneously (i.e. via software control, the FIFO can be connected to ADC data, or the AD6620 output data, but not both). In either mode, AD6620 data is still available at the header connection. ADC data is not available at the header connection. The FIFO accepts AD6620 data (AD6620 Mode) in the parallel mode. Serial mode is not supported by the FIFO.

Control and download of information to the AD6620 occurs under software control through the PC printer port.

*Most Evaluation boards have a 16K FIFO (IDT 72265) installed for U202. The FFT results will not be valid for 32K or 64K unless U202 is replaced with IDT part 72V285.

Software Overview

When the AD6620 Control Software is started two windows appear on the screen as shown below. The two windows are AD6620 Monitor, and AD6620 Controller. These two programs are used interactively to control the AD6620 and download data from the FIFO and analyze it.

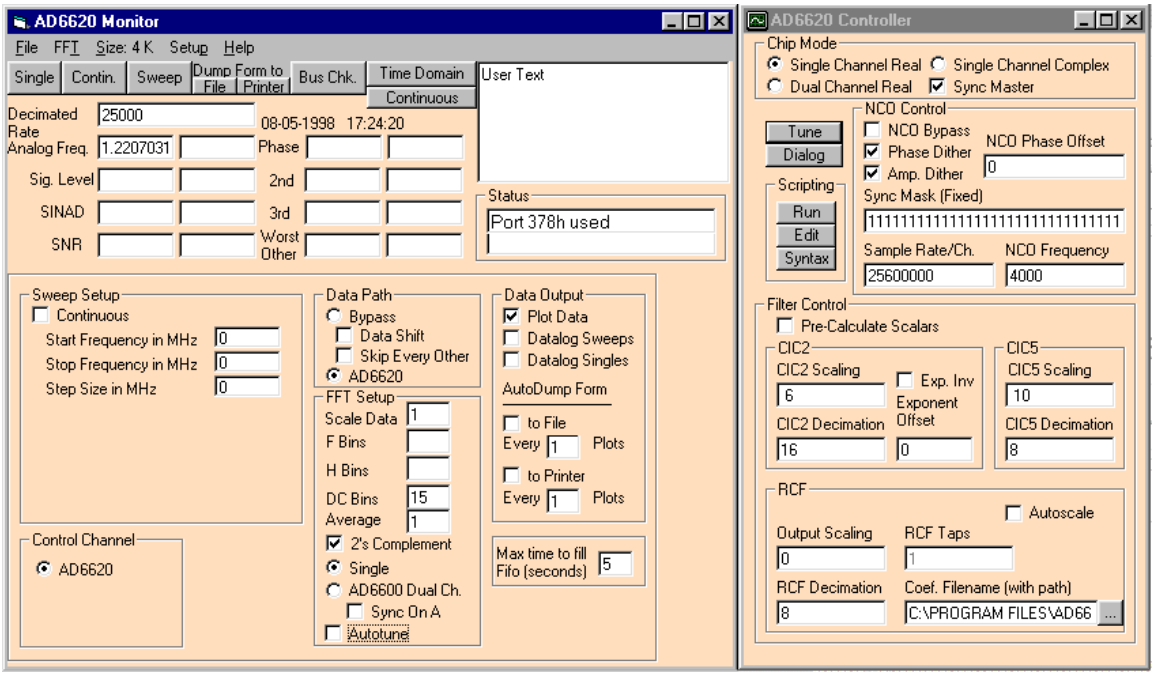


Figure 2. AD6620 Monitor and Control Programs.

AD6620 Monitor Program

First let's examine the **AD6620 Monitor** program. See Figure 3 below. The AD6620 Monitor program monitors and processes data from the FIFO.

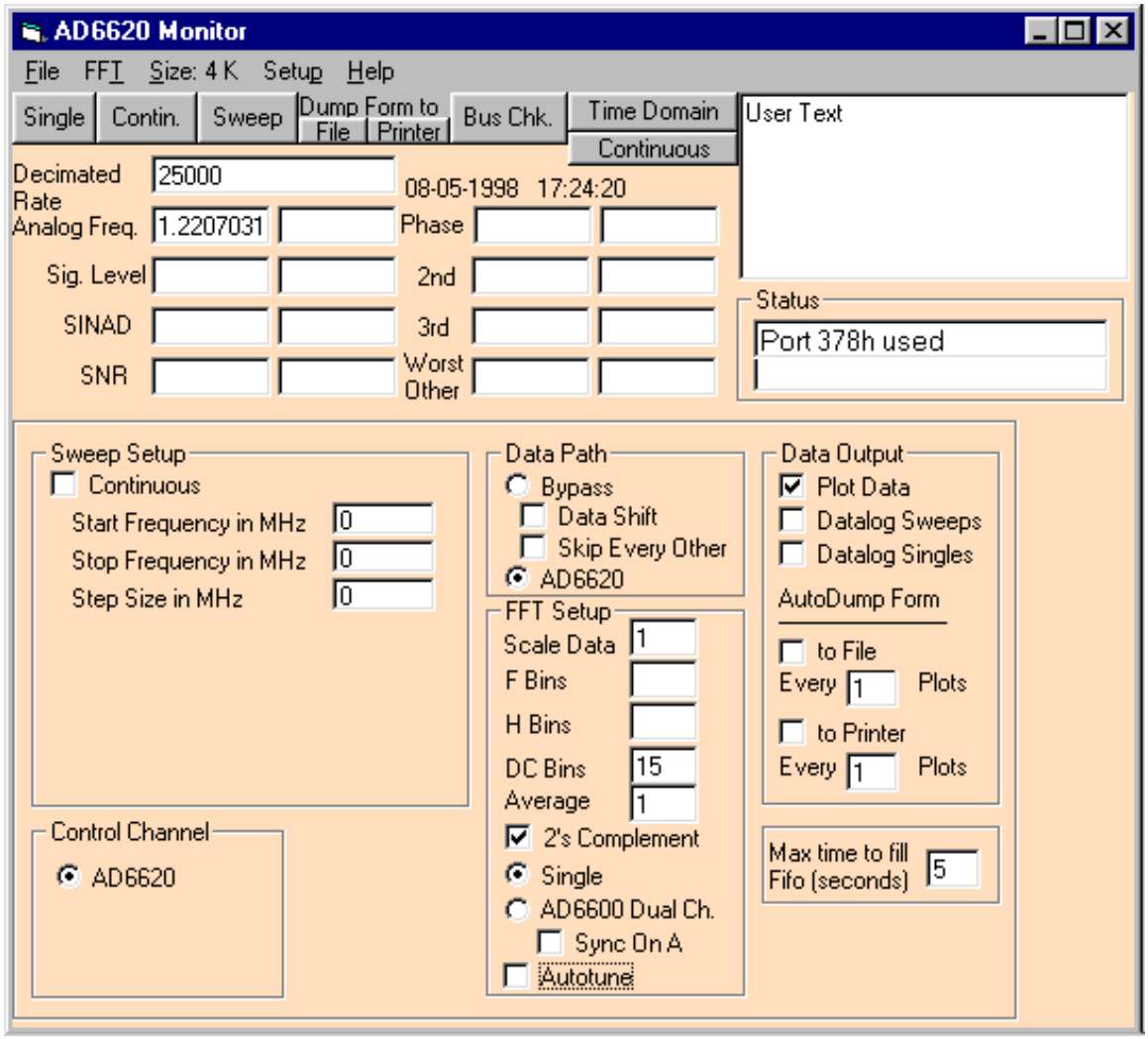


Figure 3. AD6620 Monitor Program

Below is a detail listing of the available controls/outputs and their respective functions.

Pull down Menus:

File

Dump Form to Printer. Prints the window to your selected printer (network or valid printer port).
Dump Form to File. Saves the window to a file as a bitmap.
Find Port. Determines which Printer Port is connected to the AD6620 Evaluation Board.
Exclude. Digitally removes the largest signal from subsequent FFT plots. This function allows the removal of an interfering signal from the plot. Care must be used, as once the appropriate FFT bin is removed (largest signal), it remains removed from the spectrum until the program is restarted. Up to 10 bins can be excluded.
Show I vs. Q plot. Brings up a new window which allows you to see the I and Q data coming from the AD6620 in a 2D or 3D (vs. time) format after a time-domain data capture.
Exit. Exits the program.

FFT

Single. Loads a block of data from the FIFO, computes an FFT and displays the spectrum. Zoom commands are available on the FFT display screen. Using the mouse, click and drag a box around the portion of the plot you would like to zoom to and then click the appropriate zoom button. The FFT data may also be saved to a file by pressing the Save button and entering a filename and path. The FIFO data is captured from the ADC directly, or the AD6620 output. If a windowing function is selected, this is applied during the FFT.
Continuous. Same as **Single**, but FFTs are computed and displayed continuously.
Sweep. Sweeps the AD6620 NCO through the range and using the step size indicated in the **Sweep Setup** box. This function is only valid when AD6620 data is available to the FIFO (non-bypassed mode, set in **Data Path** box.) Sweep can be used to view the AD6620 filter characteristics by sweeping the NCO through the band of interest with a fixed amplitude tone and noting the filter roll-off.
User Windowing Function... Allows a user-defined window function to be loaded from a text file. The number of values in the file must equal the current FFT size.
Hanning Window. Uses the Hanning window when calculating the FFT.
4 term Blackman-Harris Window. Uses the Blackman-Harris window when calculating the FFT.
No Window. Uses a window of all ones when calculating the FFT.

FFT Size

1K, 2K, 4K, 8K, 16K, 32K, 64K. Sets the size of FFT calculated or Time-domain data captured. Availability of these options depends on single/dual channel, real/complex data, Bypass or AD6620 Data Path. 32K and 64K are not valid unless U202 is upgraded as mentioned on pg. 3.

Setup

Allows the user to switch between the Plot display, and the Setup display.

About

Displays the Current version number.

There are 7 control buttons across the top.

Single See **Single** above.

Contin. See **Continuous** above.

Sweep See **Sweep** above.

File See **Dump Form to File**

Printer See **Dump Form to Printer**

Bus Chk. This provides a visual indicator that valid data is being downloaded from the AD6620 Evaluation Board. Xs, 1s, and 0s are displayed in the **Status** box to indicate logic levels of data being read from the board. A "1" indicates the bit is always logic 1, a "0" indicates the bit is always logic 0, and "X" indicates the bit is switching. Mostly Xs should be displayed if the board is setup and operating correctly. **Status** box indicates shorted bits or unchanging data. "X" indicates switching data. "+" indicates the bit is always the same as the next significant bit. "=" indicates the bit is always the same as the next significant and the next lower bit. "-" indicates the bit is always the same as the next lower bit.

Time Domain Loads a block of data from the FIFO and plots the data on the screen. Zoom commands are available on the Time Domain screen. Using the mouse, click and drag a box around the portion of the plot you would like to zoom to and then click the appropriate zoom button. The Time Domain data may also be saved to a file by pressing the Save button and entering a filename and path. The FIFO data is captured from the ADC or the AD6620 output depending on settings in the Data Path box.

Continuous Same as **Time Domain**, but data is retrieved and displayed continuously.

There are 11 text boxes at the top. These are all output boxes and display information regarding FFT calculations.

Encode Rate	Displays the encode rate in Bypass Mode. This value is read from the **AD6620 Controller** program, **Sample Rate/Ch** box. Displays the Decimated Data Rate of the AD6620 in the AD6620 Mode.
Analog Freq	The software assumes a single tone test is being performed. Using the **Encode Rate** and FFT data, this box displays the calculated frequency of the largest tone in the spectrum.
Sig Level	See **Analog Freq** above. This box displays the amplitude relative to fullscale of the largest tone in the FFT spectrum.
SINAD	Displays the Signal to Noise And Distortion of the FFT data.
SNR	Displays the Signal to Noise Ratio of the FFT data. ***Note***: SINAD and SNR will be the same in AD6620 mode.
Phase	Displays the phase information of the largest signal in the FFT spectrum.
2nd	Displays the level of the 2nd harmonic of the largest signal in the FFT spectrum. This is relative to this largest signal (dBc).
3rd	Displays the level of the 3rd harmonic of the largest signal in the FFT spectrum. This is relative to this largest signal (dBc).
Worst Other	Displays the level of the highest spur which is not the largest signal, or a 2nd or 3rd harmonic of the largest signal in the FFT spectrum. Measured relative to full scale (dBfs).
User Text	Allows the user to enter text which will be printed on plots. Can be used to document setups, test equipment, or other pertinent user information.
Status	Displays the Printer Port address used to connect to the AD6620 Evaluation Board and Bus Chk information. Displays status information such as Bus Chk. described above.

Sweep Setup

Continuous. When checked, the Sweep runs continuously.
Start Frequency in MHz. Sets the start frequency of the **Sweep.**
Stop Frequency in MHz. Sets the stop frequency of the **Sweep**.
Step Size in MHz. Sets the step size used by the NCO of the AD6620.

Data Path

As described in the Overview of the AD6620 Evaluation Board, the on-board FIFO can capture ADC data or AD6620 output data. This data is then downloaded

to the PC via the Printer Port for processing. These options determine which data is captured by the FIFO.

Data Path

By-Pass. When selected, ADC data is fed to the FIFO.

Data Shift. This is used with the AD6600 Gain Ranging ADC in the **By-Pass** data path mode. It allows gain range data (RSSI bits) to also flow to the FIFO.

Skip Every Other. When a 2x clock is used on the AD6600, each piece of data gets latched into the FIFO twice. To compensate for this, use this option to throw out every other piece of data.

AD6620. When selected, AD6620 data is fed to the FIFO and FFTs are complex.

FFT Setup. As mentioned before, the FFT assumes a single tone measurement. Some of these options refer to this fact.

FFT Setup

Scale Data. The FIFO data is multiplied by the scalar. Normally 1 but can be any real number.

F Bins. Number of bins of the FFT around the fundamental (largest) signal that are summed to perform SNR and SINAD calculations. If left blank, it will calculate this value itself and should be sufficient in most cases. To validate this, see **Graphing Options - Bin Boundaries**

H Bins. Number of bins of the FFT around the harmonics of the fundamental that are summed to perform SNR and SINAD calculations. If left blank, it will calculate this value itself and should be sufficient in most cases. To validate this, see **Graphing Options - Bin Boundaries**

DC Bins. Number of bins of the FFT (at DC) that are discarded for SNR and SINAD calculations.

Average. Sets the number of data sets to average per FFT calculation

2's Complement. When checked, data is interpreted as 2's complement, otherwise as binary.

Single. The FFT interprets AD6620 input data as single channel.

AD6600 Dual Ch. The FFT interprets AD6620 input data as dual channel real.

Sync On A. In dual channel mode, channel A data is displayed red and channel B is blue. Random channel assignment occurs when unchecked.

Autotune. Tunes the AD6620 to the frequency of the largest signal in the FFT spectrum when the program performs an FFT.

Data Output

Plot Data. Data is not plotted to the screen when unchecked. This is useful during Datalog to increase system speed.

AutoDump Form to… Controls where (disk or printer) and how often the data is output when doing a sweep.

Datalog Sweeps. Writes text data to a file during sweep mode. The user will be prompted for an appropriate filename and path upon starting a sweep.

Datalog Singles. Writes text data to a file for each FFT taken. The user will be prompted for an appropriate filename and path immediately. Also, the user is given the option of appending data to an existing file.

Fifo timeout Determines the maximum time the software will wait for the fifo to fill. This value is reset to 5 seconds when the software is started.

Graphing Options - The following options appear when the graph is visible.

GridLines. Puts horizontal gridlines on the plot in FFT mode and Time Domain mode.

Harmonics. Indicates the fundamental frequency and it's 2^{nd} through 6^{th} harmonics by putting a number on the graph above each corresponding bin.

Bin Boundaries. Shades a section of the FFT plot indicating which bins are being considered a part of a group, such as the DC bins, the bins around the fundamental and the bins around each harmonic.

Average Noise. Draws a horizontal line indicating the average noise floor.

There are also four buttons on the graph:

Save. This saves the data points from the graph into a text file. Dual channel data is interleaved.

Restore. This restores the graph to its original view after zooming in.

H-Zoom. This scales the selected section horizontally.

V-Zoom. This scales the selected section vertically.

A section is selected by dragging the mouse over the desired area of the graph.

AD6620 Controller Program.

See Figure 4 below. The AD6620 Controller program controls and downloads information to the AD6620.

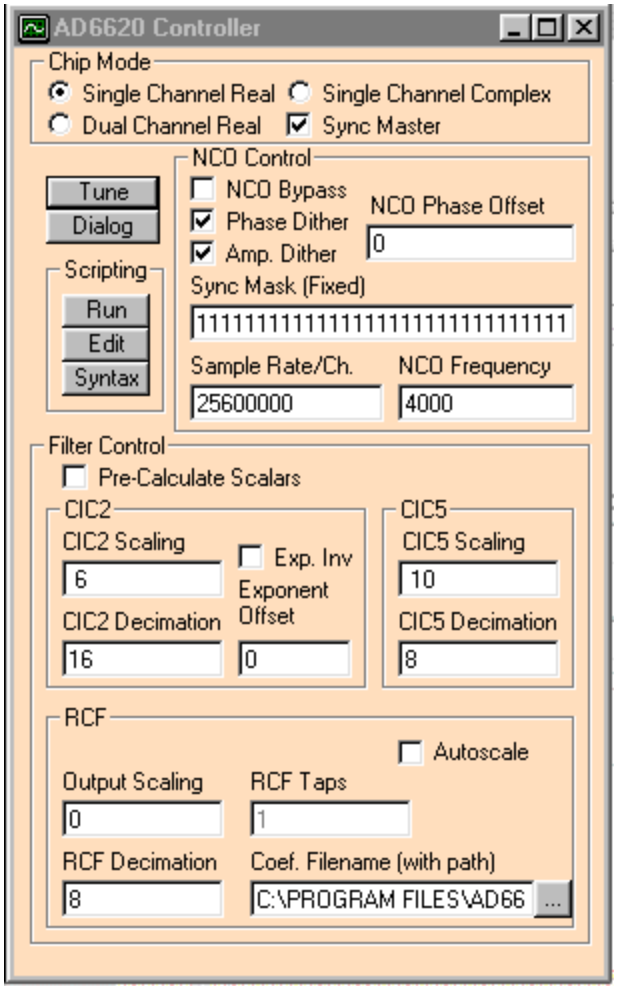


Figure 4. AD6620 Controller Program

Below is a detail listing of the available controls/outputs and their respective functions.

Chip Mode

Single Channel Real.
Single Channel Complex.
Dual Channel Real. Selects the AD6620 programmed mode. When Dual Channel Real is selected, **Unique B** appears in the RCF block.

Sync Master. When checked the AD6620 is set as a Sync Master, otherwise as a SLAVE.

NCO Control

NCO Bypass. When checked the AD6620 NCO is bypassed.
Phase Dither. When checked the AD6620 NCO Phase Dither is enabled.
Amp. Dither. When checked the AD6620 NCO Amplitude dither is enabled.
NCO Phase Offset. Allows the user to enter the AD6620 NCO Phase Offset (0 to 65535).
Sync Mask. This is always set to all "1s".
Sample Rate/Ch. User sets the clock rate of the AD6620. This should indicate the per channel clock rate in Hertz. For example if the AD6620 is clocked at 20 MSPS in the Dual Channel Real mode this value should be set to 10000000.
NCO Frequency. Carrier offset, sets the NCO frequency.

Filter Control

Pre-Calculate Scalars. When checked the software calculates the value of the CIC2 and CIC5 scalars to insure clipping doesn't occur. These scalars are calculated based on the decimation rates set for each stage. If this box is not checked, the scale values entered in **CIC2 Scaling** box and **CIC5 Scaling** box are used.
CIC2 Scaling. Allows the user to set the scale value for CIC2 if **Pre-Calculate Scalars** is not checked. Displays the calculated value of CIC2 scaling if **Pre-Calculate Scalars** is checked.
CIC2 Decimation. Allows the user to set the decimation rate for the CIC2 stage of filter. Range is 1 to 16.
Exp. Inv. Used with the AD6600 gain ranging ADC. Inverts the exponents (RSSI) bits when checked.
Exponent Offset. Used with the AD6600 gain ranging ADC. Sets the number of gain ranges the data is offset by. For the AD6600 this should be set to 6.
CIC5 Scaling. Allows the user to set the scale value for CIC5.
CIC5 Decimation. Allows the user to set the decimation rate for the CIC5 stage of filter. Range is 1 to 32.

RCF

Output Scaling. In 16-bit mode, this determines which of the 23-bits (RCF output) are output to the serial or parallel port. See the equation in the AD6620 data sheet for complete details.
RCF Decimation. Allows the user to set the decimation rate for the RCF stage of filter. Range is 1 to 32.

RCF Taps. For display only. Displays the number of taps used in the RCF.

Coef. Filename (with path) Sets the path and filename of the AD6620 data file loaded when **Tune** button is pushed. The data file is generated with AD6620 Filter design software, or can be a text file generated by the user. See the section on data file format for more information. If no filename or an invalid file name is used, then the RCF taps is set to 1 and a +1 is written to RCF location 0. This effectively allows the RCF to be by-passed.

Autoscale. When checked the coefficients loaded (from file) to the AD6620 are scaled to the full range of the RCF (i.e. 20-bits).

Unique B. This only appears when the Chip Mode is set for **Dual Channel Real**. This allows channels A and B to have different coefficient values interleaved in RAM.

Tune An arrow by the **Tune** button flashes on and off when any parameter is changed in the AD6620 Controller program. This indicates that the AD6620 needs to be updated by pushing the **Tune** button.

When the **Tune** button is pushed, the first thing checked is the Coef. Filename. If the file was generated by the AD6620 Filter Design Software (extension .IMP) then the following are updated according to the file specified in **Coef. Filename**.

- **Chip Mode.**
- **Sample Rate/Ch.**
- **Filter Control.**
  - **CIC2.**
    - **CIC2 Scaling.** Updated if Pre-Calculate Scalars is checked.
    - **CIC2 Decimation.**
    - **CIC5 Scaling.** Updated if Pre-Calculate Scalars is checked.
    - **CIC5 Decimation.**
  - **RCF.**
    - **RCF Decimation.**
    - **RCF Taps.**

When the **Tune** button is pushed, if the file contains only valid coefficient data (generated by the user) as described in the data file format (see below), only the RCF coefficients are updated.

When the Tune button is pushed and the filename is invalid, the RCF filter length is set to 1, and a 1 is placed in the RCF filter. This effectively bypasses the RCF stage for debug purposes. Other

registers are updated based on values set in the appropriate boxes. These include **Chip Mode**, **NCO Control**, **CIC Scaling**, and **CIC Decimation**.

Dialog Dialog displays the values programmed into the AD6620 registers. The configuration registers are listed first followed by the coefficients programmed.

Run Runs a script file to control the software automatically. See the section on File Scripting below for details.

Edit Opens a text file for creating or editing a script file.

Syntax A quick reference for scripting syntax.

Coefficient Files

There are two file formats that are read by the **AD6620 Control Software**. These are both plain ASCII formats and can be generated and edited by any text editor.

The first format is a composite format. This is the format generated using the **AD6620 Filter Design Software**. The Filter Design Software designates these files by using .IMP as the extension. This format includes the decimation rates and chip setup. This allows all design parameters to be automatically loaded when the impulse data is loaded. The listing below shows a typical composite data file.

```
16&
4&
16&
38880000
1
1
0
.1
.4
.5
.5
.4
.1
0
```

Blank lines are not allowed as they are interpreted as 0 values. The RCF coefficient data can either be scaled or un-scaled. If these are already scaled, the **Autoscale** feature must be disabled when the file is loaded.

The 16, 4, and 16 are the decimation rates for the CIC2, CIC5, and RCF respectively. The "&" is required to tell the software that these are decimation rates. All three decimations must be specified. The 38880000 is the **Sample Rate/Ch.** The first 1 is the chip mode, 1 for **Single Channel Real**, 2 for **Dual Channel Real**, and 3 for **Single Channel Complex**. The second 1 is the clock multiplier. In this case, the clock rate is equal to the **Sample Rate/Ch**. The final eight values are the coefficient data for the RCF. Data must strictly follow this format for the file to be read by the **AD6620 Control Software**.

The second file format is just the impulse data (coefficients). Each line of text represents a memory location in the RCF. This data can be scaled or un-scaled. Again, if it is scaled, the **Autoscale** feature must be disabled when the file is loaded. Otherwise the data will be re-scaled to provide the most dynamic range within the RCF filter. This usually provides unexpected signal gain. The format for the RCF coefficient file is shown below.

```
0
.1
.4
.5
.5
.4
.1
0
```

This file will provide an 8 tap RCF Finite Impulse Response (FIR) filter.

File Scripting

File Scripting is a provision that allows the automatic issue of commands to the AD6620 evaluation board via the AD6620 Control Software. A script file is executed using the **Run** button on the AD6620 Control Software window. The listing below is an example of the possible commands. Blank lines and comments are allowed. The AD6620 Control Software will halt on any unrecognized commands not preceded by the comment characters: "//". Comments must always be on there own line, not appended to the end of a script command line.

The feature to be set is to the left of the equal sign and the state of the feature is to the right of the equal sign. If the state is ON then the software feature is enabled. If the state is OFF then the software feature is disabled.

Syntax for using script files to control the software (not case sensitive).

==========

Enter all values the way they would be entered directly into the form.

BUTTONS:
  Single
  ContinuousFFT
  Sweep
  Dump2File=x
  Dump2Printer
  Bus Check
  Time Domain
  ContinuousTD
  FFT Size=(1|2|4|8|16|32|64) (64 avail in single real; 32 avail in single real, dual real, single complex)

SWEEP SETUP:
  Continuous Sweep=(on|off)
  Start Frequency=x
  Stop Frequency=x
  Frequency Step=x

DATA OUTPUT:
  Plot Data=(on|off)
  Datalog Sweeps=(off|<filename>)
  Datalog Singles=(off|<filename>)
  AutoDump2Printer=(on|off)
  AutoDump2Printer Every=x
  AutoDump2File=(off|<fileprefix>)
  AutoDump2File Every=x

DATA PATH:
  Data Path=(bypass|ad6620)
  Data Shift=(on|off)
  Skip Every Other=(on|off)

FFT SETUP:
  Scale Data=x
  F Bins=(x|<blank>)
  H Bins=(x|<blank>)
  DC Bins=x
  2's Complement=(on|off)
  Average=x
  Channel=(single|dual)

Sync On A=(on|off)
Autotune=(on|off)

GRAPH CONTROLS:
GridLines=(on|off)
Harmonics={on|off)
Bin Boundries=(on|off)
Average Noise=(on|off)

CHIP MODE:
Chip Mode=(scr|scc|dcr)
Sync Master=(on|off)

NCO CONTROL:
NCO Bypass=(on|off)
Phase Dither=(on|off)
Amp. Dither=(on|off)
NCO Phase Offset=x
Sync Mask=x
Data Rate=x
NCO Frequency=x

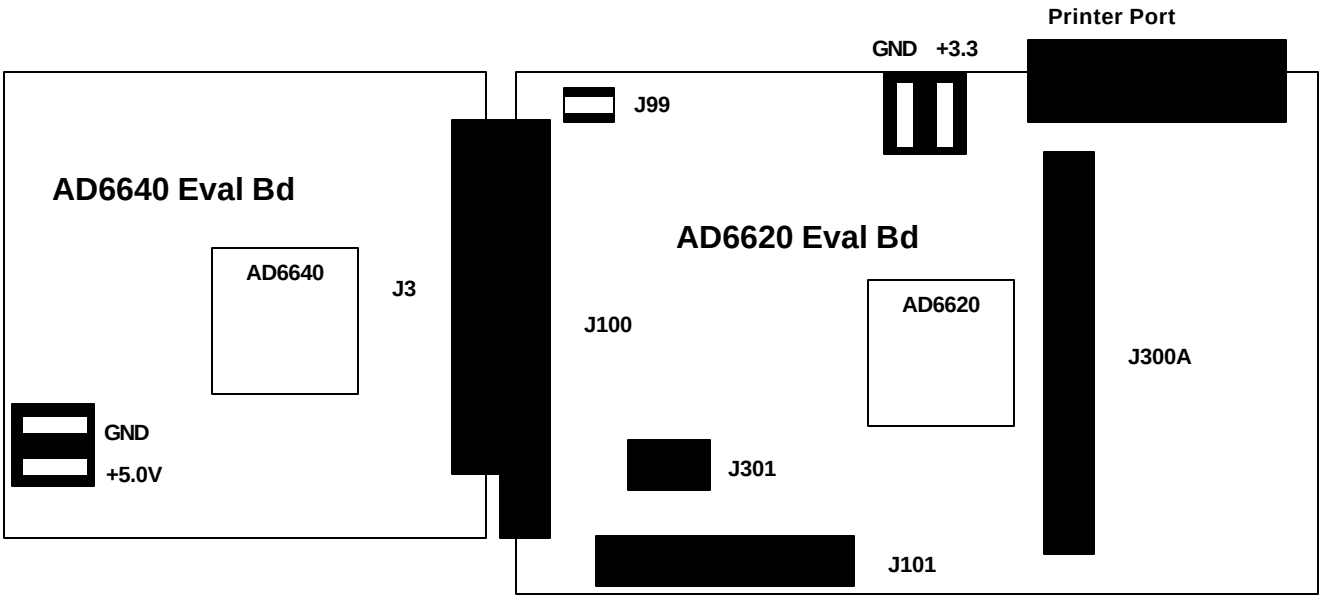
TUNER BUTTON:
Tune

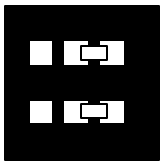
FILTER CONTROL:
Pre-Calculate Scalars=(on|off)
CIC2 Scaling=x
CIC2 Decimation=x
Exp. Inv.=(on|off)
Exponent Offset=x
CIC5 Scaling=x
CIC5 Decimation=x
Autoscale=(on|off)
Output Scaling=x
RCF Decimation=x
Coef. Filename=x

MISC:
I vs Q Plot=(on|off)
Wait=x (in seconds, fractions okay)
User Text=x (sends text to the text box)
User Text Append=x (appends text to the text box)
Restart (restarts script file execution)

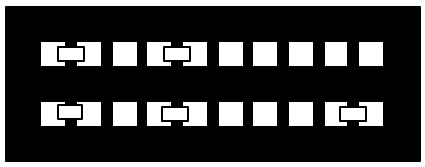
Indicate a comment in the script by preceding the line with two slashes: //
The above listing is also available by pressing the **Syntax** button.

Application Example: AD6640 Evaluation Board Connected To The AD6620 Evaluation Board





J301



J101

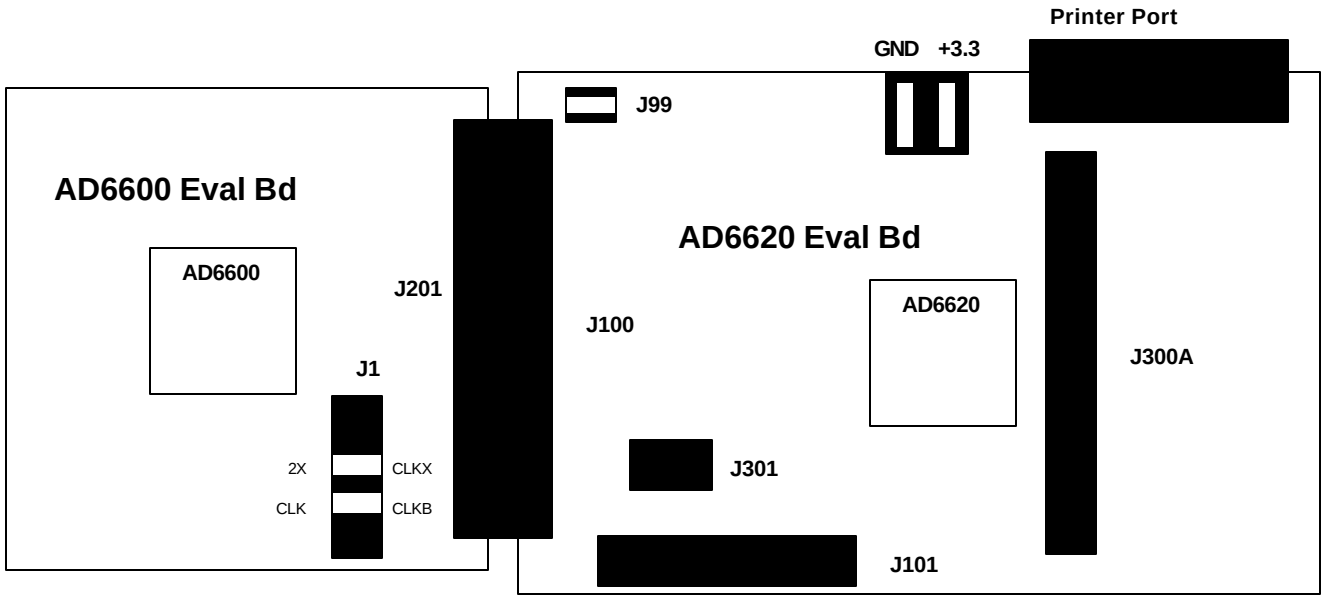
<u>AD6620 Evaluation Board Jumper Connections.</u>

<u>J301</u>: TCK-CK, TA/B-A/B
<u>J101</u>: BT3-B3S, BT2-B2S, BT1-B1S, BT0-B0S, CK-CKA

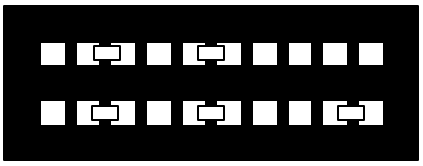
Notes:

1. Jumper is placed on J99 to power the output driver and latch of the AD6640 evaluation board.
2. The connectors of the 2 evaluation boards are not aligned. Pin 1 of each connector must mate as shown in the above diagram.
3. J101 jumper CK-CKA sets the delay for data between the AD6640 evaluation board and the input latch of the AD6620 board. This jumper may need to be moved for optimum timing based on the data delay of the AD6640 evaluation board. See the schematic for other delay connections.

Application Example: AD6600 Evaluation Board Connected To The AD6620 Evaluation Board



J301



J101

<u>AD6620 Evaluation Board Jumper Connections.</u>

<u>J301</u>: ICK2-TK, TA/B-A/B
<u>J101</u>: B3S-A/B, B2S-E2, B1S-E1, B0S-E0, CK-CKA

Notes:

1. Jumper is placed on J99 to power the output driver and latch of the AD6600 evaluation board.
2. ***J101 jumper CK-CKA sets the delay for data between the AD6600 evaluation board and the input latch of the AD6620 board. This jumper may need to be moved for optimum timing based on the data delay of the AD6600 evaluation board. See the schematic for other delay connections.***

AD6620 Evaluation Board Layout and Schematic

Connector J400 is the Centronics Printer Port Interface.

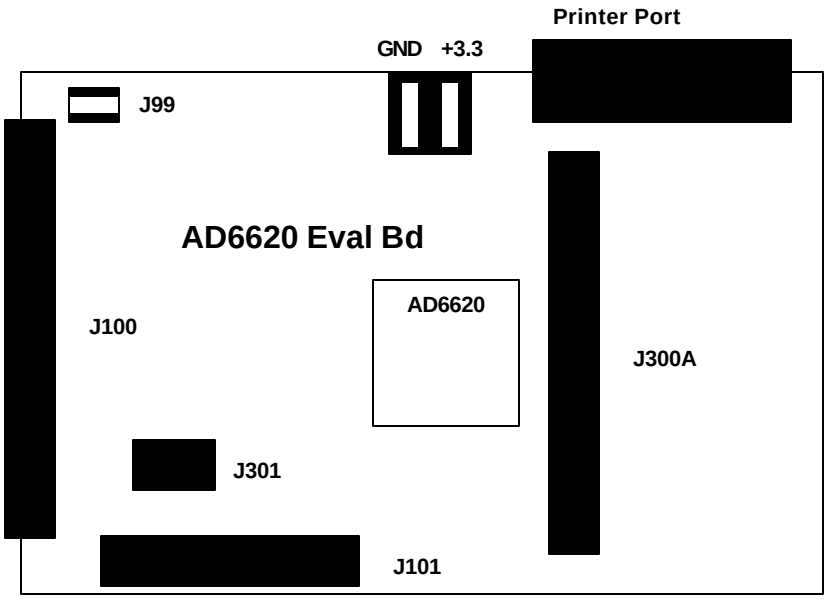
Connector J300A (40-pin Header near the center of the board) connects directly to the AD6620 outputs. This data can be used to drive an external DSP. In the Serial Output Data Mode, the AD6620 can only be run as a serial bus master as the serial lines are buffered to minimize reflections on these lines.

Connector J101 (20-pin Header) is used to align data bits connected to the FIFO. When using a standard ADC (AD6640), the data routes directly to the FIFO. When using an AGC ADC (AD6600), the data must be shifted to accommodate the RSSI bits. The jumper connections required are shown in the applications examples above.

Connector J301 (6-pin header) is used to select the clocking scheme used for the evaluation board. The jumper connections required are shown in the applications examples above.

Connector J100 (50-pin right angle header) is the data input connector. The ADC evaluation board connects here.

Connector J99 (2-pin header) when jumpered, supplies power (3.3V) to connector J100 where it is used to power the attached evaluation board. For instance, when J99 is jumpered, and the AD6640 evaluation board is connected to J100, power for the AD6640 outputs and latches are derived from the AD6620 evaluation board (3.3V).



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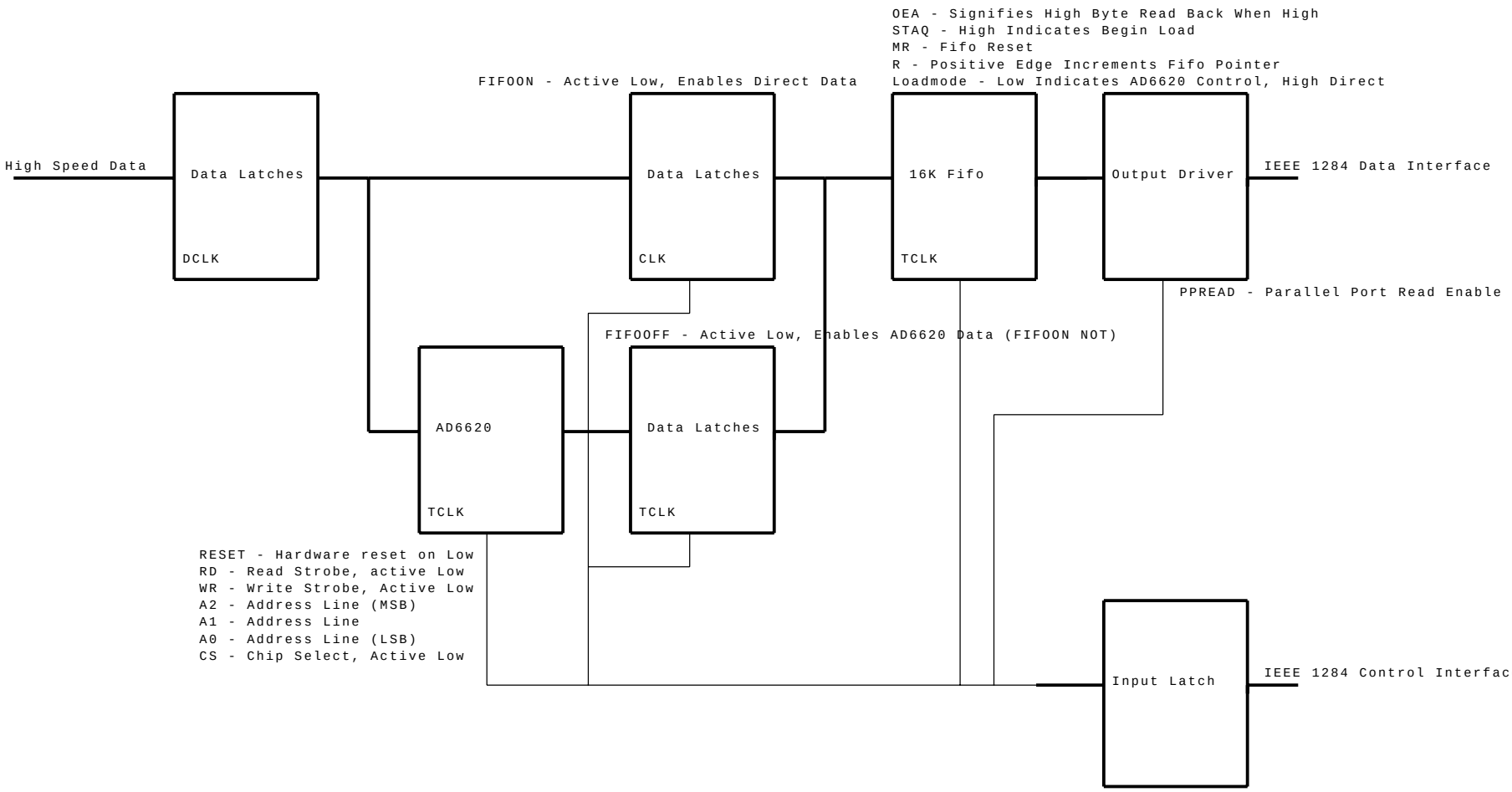

NOTE! +5V and DVCC labels refer to 3.3 Volts

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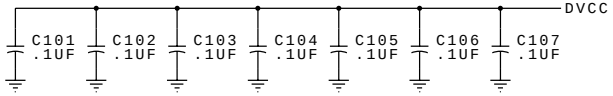
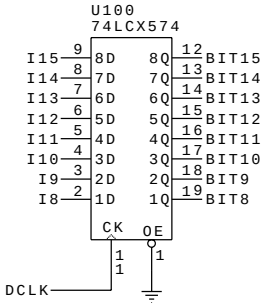
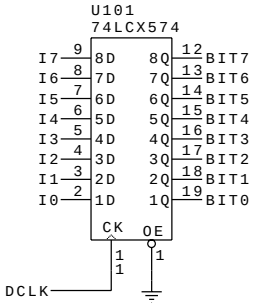
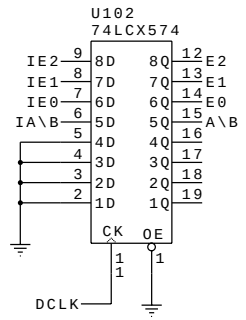
SYM	DESCRIPTION	DR	CHK	APPR	DATE



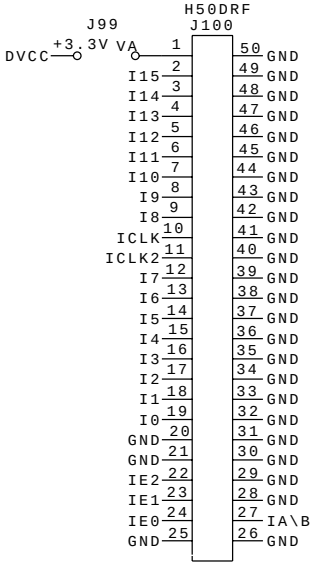
INPUT DATA LATCHES



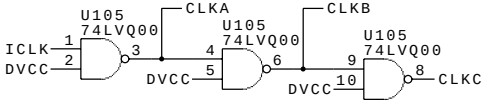


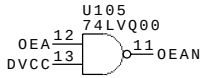


ADC CONNECTOR

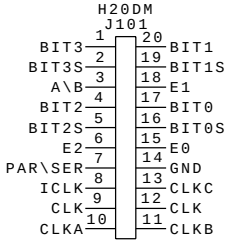


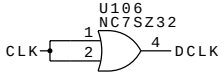
INPUT TIMING SELECTOR



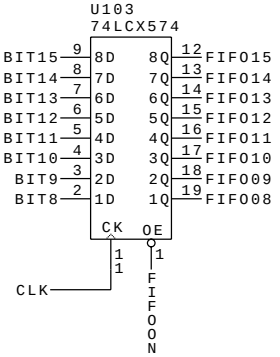


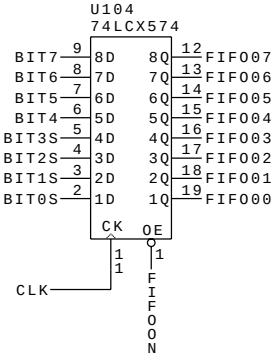
PASS THRU SELECTOR





BYPASS FIFO LATCH





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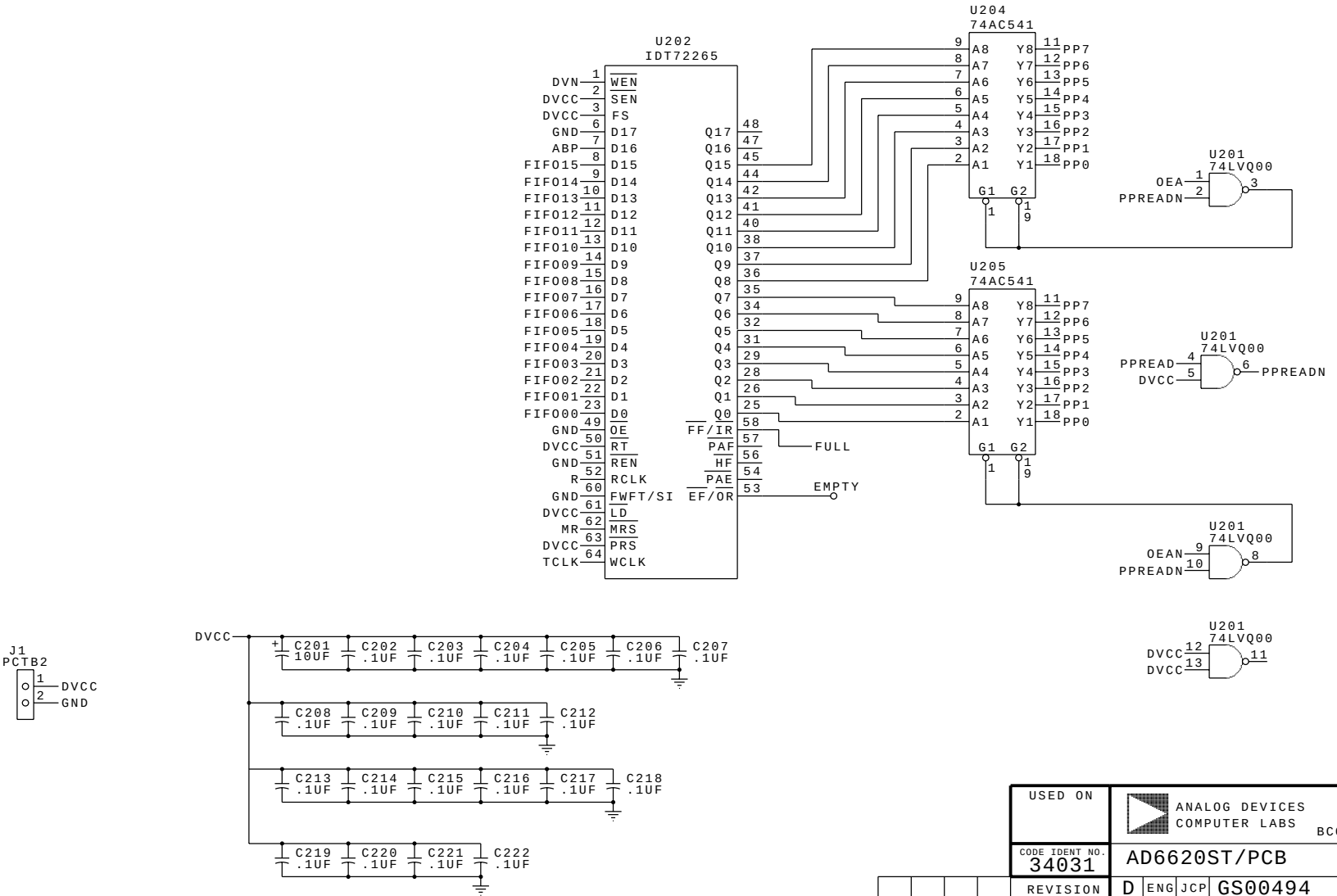
DATA FIFO

FIFO OUTPUT REGESTERS



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SYM	DESCRIPTION	DR	CHK	APPR	DATE

DATA TUNER AND FILTER

U300 AD6620P

SERIAL PORT

H40DM J300A

AD6620 Data Latch

U301 74LCX574

U302 74LCX574

U303 74LCX574

CONFIGURATION

100MIL for header

H6DM J301

U304 74AC74

U305 74LVQ00

U307 NC7SZ32

U308 NC7SZ32

U309 NC7SZ32

R300–R307 10K

R308 10K

R309–R318 10K

R319 1K

USED ON	ANALOG DEVICES COMPUTER LABS BCOM		
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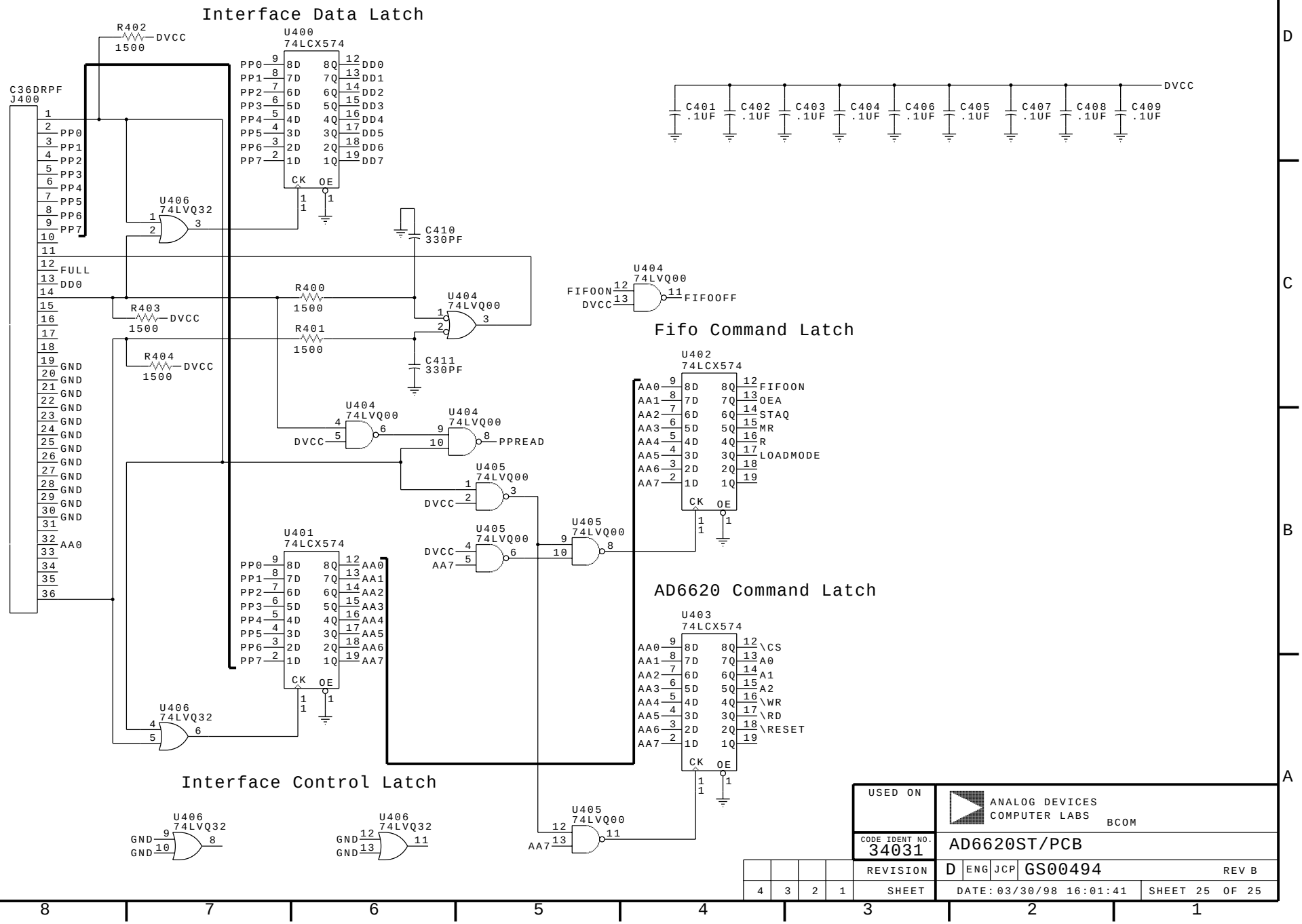
SYM	DESCRIPTION	DR	CHK	APPR	DATE



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CODE IDENT NO. 34031	AD6620ST/PCB	
REVISION	D ENG JCP GS00494	REV B
4 3 2 1 SHEET	DATE:03/30/98 16:01:41	SHEET 25 OF 25