

dpASP AN231E04 Features

- ⊖ Dynamic reconfiguration
- ⊖ 7 configurable I/O cells, two dedicated output cells
- ⊖ Fully differential architecture
- ⊖ I/O buffering with single ended to differential conversion
- ⊖ Low input offset through chopper stabilized amplifiers
- ⊖ 256 Byte Look-Up Table (LUT) for linearization and arbitrary signal generation
- ⊖ Typical Signal Bandwidth: DC-2MHz (Bandwidth is CAM dependent)
- ⊖ Signal to Noise Ratio:
 - a. Broadband 90dB
 - b. Narrowband (audio) 120dB
- ⊖ Total Harmonic Distortion (THD): 100dB
- ⊖ User controlled Compensated low DC offset <250μV
- ⊖ DC Offset via chopper stabilized architecture <50uV
- ⊖ Package: 44-pin QFN
- ⊖ Supply voltage: 3.3V

Benefit of dpASP Design Technology

- ⊖ Simplify analog design and implementation.
 - a. Fully documented, repeatable analog design
 - b. Reconfiguration reduces design risk and allows field updates
- ⊖ Platform-based design approach.
 - a. Consolidate the manufacturing of multiple boards by merely using a different configuration file
- ⊖ Consolidate of multiple discrete components on a board.
 - a. Reduce board space
 - b. Simplify manufacturing
 - c. Reduce inventory sourcing and management costs
 - d. Increase system reliability and MTBF
- ⊖ High-precision, drift-free operation.
- ⊖ Dynamic reconfiguration allows for truly innovative analog systems design.

Package Contents

- ⊖ Analogic2 Board
- ⊖ Power supply adapter
- ⊖ USB programming cable
- ⊖ Audio headset
- ⊖ Printed user manual

Applications of dpASP

dpASP has wide range of applications in diverse fields like Audio, Telecom, Signal Conditioning systems, medical etc.

- ⊖ Complex analog filtering circuits
- ⊖ Closed loop control systems
- ⊖ Sensor signal conditioning
- ⊖ Real-time software control of analog system peripherals
- ⊖ Adaptive DSP front-end
- ⊖ Adaptive industrial control and automation
- ⊖ Self-calibrating systems
- ⊖ Compensation for aging of system components
- ⊖ Ultra-low frequency signal conditioning
- ⊖ Custom analog signal processing

What you can do with Analogic Protoboard ?

Analogic can perform wide range functions for analog signal, just check few of them

	sum	
invert	filter	
rectify	shape	
multiply	amplify	
compare	subtract	
level shift	integrate	
sample & hold	differentiate	
buffer a sensor	control a motor	
take a square root	multiplex signals	
change it to something new in less than a minute		
detect zero crossings	select a 1 Hz signal	
modulate a laser diode	play interesting music	
make arbitrary waveform	remove 50Hz interference	
create a voltage reference	drive your stereo speakers	
linearize a transfer function	make sine waves on demand	

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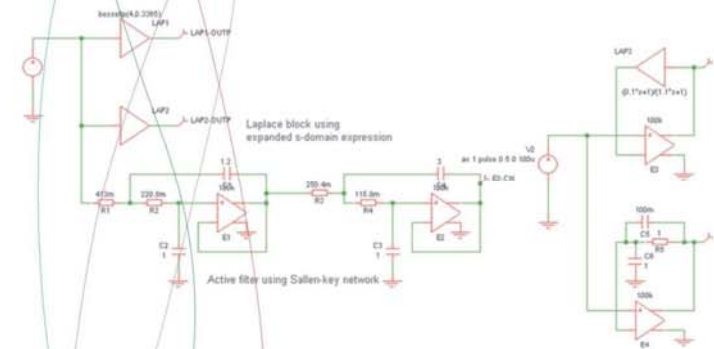
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ANALOGIC

...the PROGRAMMABLE ANALOG solution

**Change is in the air...
and now in your**

**analog
designs**



In the world of analog, they say,
Change is inevitable.
Change is hard.
Change is time consuming.
Change is next to impossible.
Until now...

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innovations
nurturing

ANALOGIC

...the PROGRAMMABLE ANALOG solution

ni2designs presents a unique development board, ANALOGIC (ver 2), for prototyping analog based designs using dynamically programmable Analog Signal Processor (dpASP).

By providing the analog equivalent of logic gates, dpASP offers designers the ability to describe analog functions such as gain stages and filters without referring to the underlying function - in other words, without having to think on the level of such components as op amps, capacitors, resistors, transconductors, and current mirrors. Lifted to this higher level of abstraction, the design process becomes so simple that non-specialists can create sophisticated circuits that would require weeks or months of design work with ASICs or discrete components.

Dynamically Programmable Analog Signal Processor (dpASP) or Field Programmable Analog Arrays (FPAA) and its design software has introduced two new capabilities to the analog world. The first is the ability to translate complex analog circuits to a simple set of low level functions, and thus to give designers the analog equivalent of a FPGA. The second is the ability to place analog functions under real-time software control within the system.

...and analog will never be the same again.



Analogic (ver 2) Protoboard

ANALOGIC Protoboard Features

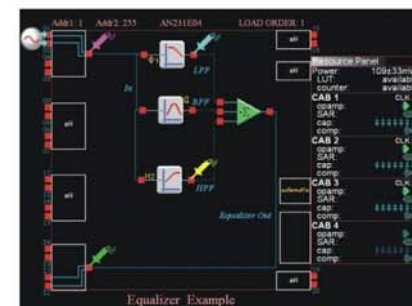
The ANALOGIC Protoboard fully integrates an dpASP based system, giving you the power to implement analog functions in reconfigurable hardware and to update the functions from within the software. This board also feature USB plug-n-play programming facility.

- ⊖ dpASP AN231E04 based configurable analog design development board.
- ⊖ Dynamically reconfigurable through plug & play USB port.
- ⊖ Compatible to AnadigmDesigner®2 software with USB interface for downloading of design.
- ⊖ Static reconfiguration with SPI EPROM.
- ⊖ Supplied with SPI PROM programmer with RS-232 interface.
- ⊖ Analog interface blocks (7 nos) for level-shifting, attenuating, filtering, etc.
 - a. 4 dedicated input or output blocks with separate input & output ports.
 - b. 3 pairs of input or output blocks with jumper selection for direction.
 - c. High speed/precision OPAMPs used for signal conversion for every input/output block.
 - d. Terminal screw headers for easy interface.
- ⊖ Microphone jack port with on board amplifier.
- ⊖ Microphone output header for amplified output.
- ⊖ Onboard analog function generator
 - a. 3 waves Sine, Square, Triangular waves @ 1Vpp
 - b. Onboard potentiometer to vary frequency from Hz to KHz range
 - c. Facility to change passive components for varying frequency ranges.
- ⊖ Configuration reset button.
- ⊖ Onboard PIC micro-controller for programming and PC interface.
- ⊖ LED indications for successful programming, error & power supply.
- ⊖ On-board 16-MHz oscillator module. User can to change frequency ranges easily.
- ⊖ +9V Power supply adapter.
- ⊖ On board regulators for 3.3V and 5V supply.
- ⊖ Small & ergonomic design of board.
- ⊖ Comes in attractive enclosure.
- ⊖ Printed user manual
 - a. Complete reference manual for using board with chapters on getting started, installing USB drivers, using Anadigm software, developing VC++ prototypes, etc
- ⊖ CD-ROM with drivers, Anadigm software, PROM programmer and lots of ready to use examples.

Design Tools

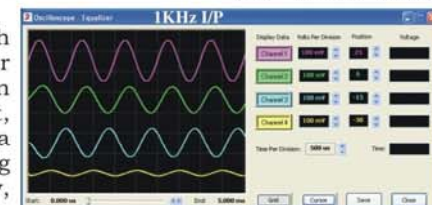
Analogic protoboard comes is fully compatible with AnadigmDesigner®2 EDA software from Anadigm. AnadigmDesigner®2 EDA software lets you design and implement dynamically reconfigurable analog circuits within a matter of minutes. You can build circuits by dragging and dropping Configurable Analog Modules (CAMs), each of which can be used to implement a range of analog functions for which you set the parameters.

AnadigmDesigner®2 includes a time domain functional simulator which provides a convenient way to assess your circuit's behavior without the need for a lab set-up. The simulator's user interface is intuitive and easily learned. Most of the steps are the same that you would take



Equalizer made up with An231E04

while bench testing. Whether or not you're an analog expert, you can build a complete analog system rapidly, simulate it immediately, and then just point and click to download it to FPAA chip for testing and validation.



User friendly in-built simulator

AnadigmDesigner®2 comes with Anadigm Assistant tools which can automate the construction of complex analog functions involving multiple Configurable Analog Modules (CAMs) in AnadigmDesigner®2 EDA software.

AnadigmFilter® Filter Synthesis Tool

Interactive universal analog programmable filter synthesis tool with automatic circuit implementation. Designing complex, high order filters is fast and easy.

AnadigmPID PID Controller Synthesis Tool

Automates development of "proportional, integral, derivative" (PID) control loops. Allows the user to build an analog PID controller in just minutes merely by specifying the top-level control coefficients.