There's a new

WIND of CHANGE

Anadigmvortex

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

anadigm™

the PROGRAMMABLE ANALOG *company*

BR020800-0001B

Accommodating change in a changing world...

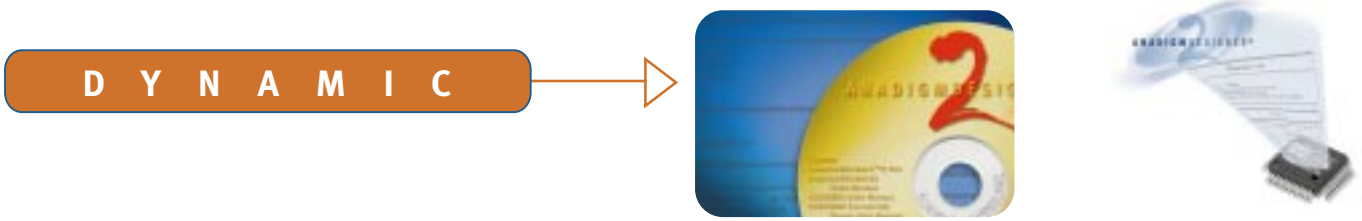
dynamic reconfigurability

With design cycles constantly accelerating, system designers are turning to programmable systems to stay competitive. The Anadigmvortex family fully integrates analog into these systems, giving you the power to implement analog functions in reconfigurable hardware and to update the functions from within the software.

Using dynamic reconfiguration, you can update filter characteristics (even the order and the quality factor), manipulate the response of your control loop, “time-slice” the device to implement a multiple-sensor interfacing capability, or simply adjust the functionality to compensate for system aging and degradation. All this without interrupting the operation of the system, and all under control of your system software.

The AnadigmDesigner®2 EDA tool takes your design and automatically translates it into C-code that can be controlled by a microprocessor within an embedded system. That means you can now control and adjust analog functions using system software in real time – a breakthrough capability for the analog world.

Anadigm® FPAAs give you increased flexibility and versatility, plus longer product lifetimes, by allowing application-specific analog circuitry to be programmed during printed circuit board assembly, in the field, or by an embedded microcontroller within the end system. By combining easy-to-use EDA tools with pre-tested and pre-qualified silicon, time to solution is drastically reduced compared with an analog ASIC or a discrete implementation.



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Change is in the wind...

and now in your

analog designs

They say change is inevitable. They say change is the one constant. And in the world of embedded microprocessors and digital design, it's certainly true – change has been fast, furious, and deliberate. But not so with analog, they say. Change is hard. Change is time consuming. Change is next to impossible. Until now.

The tedious and inflexible process of designing and implementing analog circuits could often take weeks or even months. And changes to ASIC or discrete design functionality in the field ...well, forget about it.

But we've changed all that. Now you can do designs in minutes, test and change them just as fast, fine-tune and finalize them in an afternoon or faster. And with Anadigmvortex Field Programmable Analogy Arrays (FPAAs), you can make changes later – change the function they perform within a system, or reprogram them on-the-fly to perform multiple functions. Now you really can control and change analog functions in real time.

The Anadigmvortex family sweeps in with new power and flexibility for analog circuit design.

Anadigmvortex is the first product family to enable the design and implementation of dynamically reconfigurable analog circuits – a breakthrough capability that allows analog functions to be controlled as a peripheral in an embedded microcontroller-based system. Best of all, with Anadigmvortex the time required for design implementation is reduced to just minutes.

Anadigmvortex is a complete system that combines

- **AnadigmDesigner®2 –** An advanced EDA tool that enables the design and implementation of dynamically reconfigurable analog circuits within a matter of minutes.
- **Configurable Analog Modules (CAMs) –** A growing library of CAMs greatly simplify the design of complex analog systems by allowing the designer to work at a higher level of abstraction in describing the system functionality.
- **FPAA Silicon –** A choice of devices including FPAAs that can be dynamically reconfigured, allowing the CPU in an embedded system to control, update, and manipulate analog functions in real time.
- **Development Board –** A flexible development system board to help designers prototype analog circuits and systems. The single-chip board can be expanded for evaluation and test of multiple-FPAA designs with optional daughter cards.

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A design tool for

speed, ease, FLEXIBILITY

CAMs

Configurable Analog Modules

With these pre-packaged common analog functions, the design process moves from the component level to the functional level.

- Comprehensive library of analog functions for which you set the parameters
- Allows a complex analog system to be abstracted at a higher functional level
- Improves speed and ease of circuit designs

The AnadigmDesigner®2 EDA software

The entire Anadigmvortex family was developed to offer speed, ease, and flexibility, and the AnadigmDesigner®2 EDA tool takes that philosophy to the limit. Design and implement dynamically reconfigurable analog circuits within a matter of minutes. Build circuits by simply dragging and dropping CAMs, each of which can be used to implement a range of analog functions with parameters specified by you. Verify a circuit's behavior, without the need for a lab setup, with AnadigmDesigner®2's built-in time domain functional simulator.

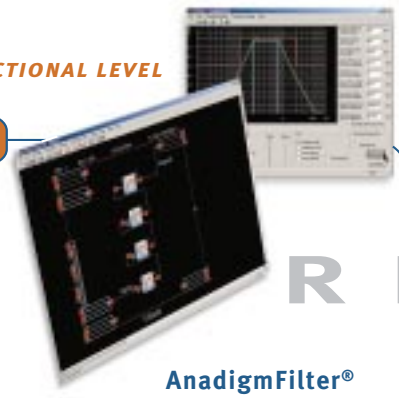
It's that simple. Whether or not you're an analog expert, you can build a complete analog system fast, simulate it instantly, and then just point and click to download it to a FPAA chip for testing and validation.

For some highly complex analog designs, more than one FPAA may be used, and AnadigmDesigner®2 addresses this need with a multiple-chip support feature that allows analog functions to be designed across several chips—all visible on the same screen—that act seamlessly as a single unit within the end system.

Other advanced features include full support for implementing dynamically reconfigurable systems and automatic multi-chip partitioning of the design.

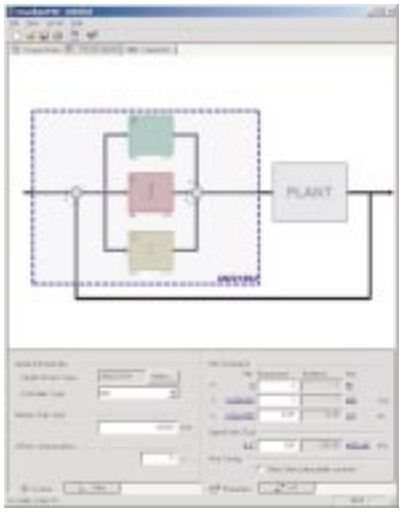
AnadigmAssistant™ tools take the design process to an even higher functional level

ANADIGMASSISTANT™ TOOLS



AnadigmPID

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
- Simplifies design of PID contol circuits for motor control, tunable lasers, level and flow control in chemical processes, temperature control, and many other applications
- Dynamically reconfigurable FPAAs enable control loops whose coefficients adjust as the system moves from start-up to quiescent for a major improvement in system performance

AnadigmFilter®

Interactive filter synthesis with automatic circuit implementation

- Designing complex, high order filters is fast and easy
- Available filter types include low pass, high pass, band pass, band stop
- Available filter topologies include Bessel, Butterworth, Chebyshev, Inverse Chebyshev, and Elliptic

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It's change that means more than control:

dynamically reconfigurable FPAAs

The Anadigmvortex Development Board

A flexible, single-chip evaluation board is available to help you prototype analog circuits and systems. The board is easy to use and provides features that simplify input/output connections as well as configuration expansion options. In conjunction with AnadigmDesigner®2, the Anadigmvortex development board is the ideal vehicle for exploring programmable analog design.

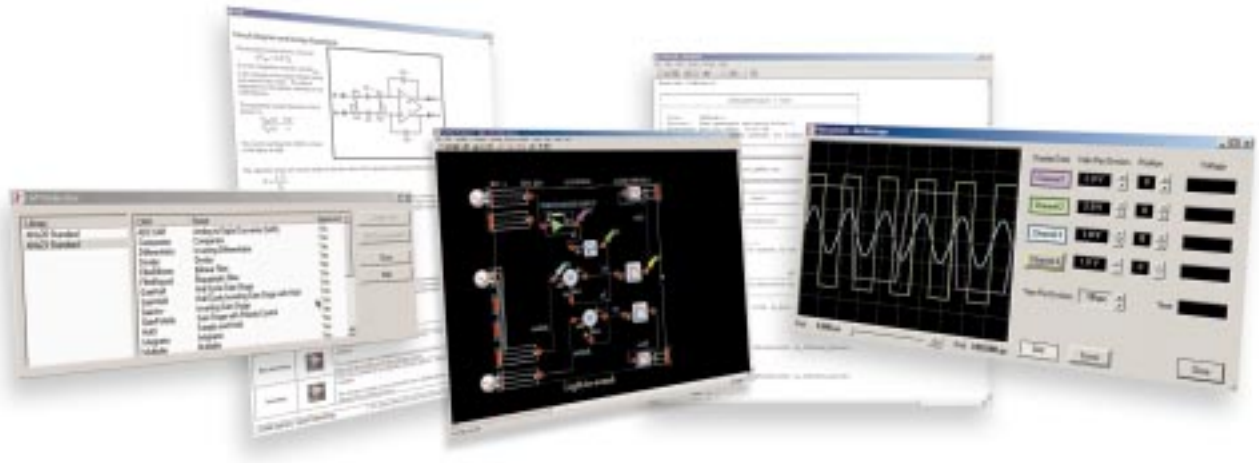
With the Anadigmvortex dynamically reconfigurable field programmable analog arrays, you can integrate analog signal conditioning and processing functions into off-the-shelf, pre-tested devices that interact with other parts of the system through software, putting analog under the absolute control of the system.

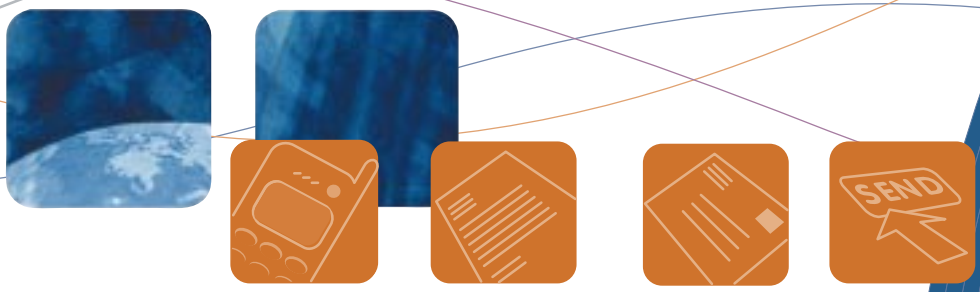
A single FPAA can be programmed to implement multiple analog functions and/or to adapt on-the-fly to maintain precision operation despite system degradation and aging. Based on a fully differential switched capacitor technology with an analog switch fabric, second-generation Anadigmvortex FPAAs have been redesigned to boost device functionality and performance.

Your choice among the four available Anadigmvortex FPAA options will depend on how many channels of analog signals you need to process, and on whether your application requires the ability to update the FPAA dynamically or statically.

Device Option	ANADIGMVORTEX				
	AN221E02	AN120E04	AN121E04	AN220E04	AN221E04
CABs	2 CAB device	4 CAB device	4 CAB device	4 CAB device	4 CAB device
Inputs/ Outputs	1 Input/Output	3 Dedicated Inputs	3 Input/Output	3 Dedicated Inputs	3 Input/Output
	1 Input/Output 4:1 MUX	1 Input with 4:1 Input MUX	1 Input/Output with 4:1 MUX	1 Input with 4:1 Input MUX	1 Input/Output with 4:1 MUX
	2 Dedicated Outputs	2 Dedicated Outputs	2 Dedicated Outputs	2 Dedicated Outputs	2 Dedicated Outputs
Additional Features	8-bit SAR-based A/D Converter (for use off chip)		8-bit SAR-based A/D Converter (for use off chip)		8-bit SAR-based A/D Converter (for use off chip)
Reconfigur-ation Mode	Static and Dynamic	Static	Static	Static and Dynamic	Static and Dynamic

CONFIGURABILITY





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