

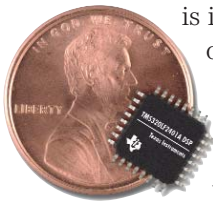
**Product Bulletin**

# TMS320LF2401A 16-Bit Fixed-Point Flash Digital Signal Controller

**Key Features**

- 49 mm<sup>2</sup> die size
- 40 MIPS of processing power
- ADC with 500-ns conversion time on five channels
- 8 Kwords of sectored reprogrammable Flash memory with code security
- Watchdog timer
- SCI communication
- PWM, QEP, CAP and timers
- 64-bit password protection
- Pin-compatible ROM versions

The new TMS320LF2401A digital signal controller, part of the TMS320C2000™ digital signal processor-based (DSP) platform, is ideal for space-constrained applications that require the control peripherals and ease-of-use of a traditional microcontroller and the processing power of TI leading DSPs.



At only 49 mm<sup>2</sup>, the LF2401A controller provides 40 MIPS of processing power for precise control in space-constrained consumer and industrial applications including:

- Medical
- Printers
- Copiers
- HVAC
- Power tools
- Power conversion

**Small size with big features**

The LF2401A controller integrates numerous MCU-like peripherals to provide a true single-chip-controller solution including a high-performance, 10-bit analog-to-digital converter (ADC) which has a minimum conversion time of 500 ns and up to five channels of

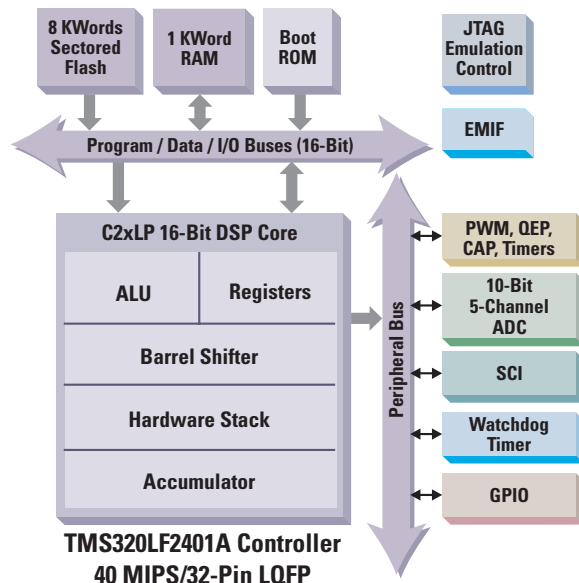
analog input. The auto sequencing capability of the ADC allows a maximum of 16 conversions to take place in a single conversion session without any CPU overhead.

8 Kwords of integrated Flash memory allows for reduced development time as well as field reprogrammability. The integration of the Flash also means a smaller board space and reduced bill of material costs. Along with the

Flash memory, the LF2401A controller contains a 256-word boot ROM to facilitate in-circuit programming. A 64-bit password-based “code security” feature on the device prevents unauthorized duplication of intellectual code proprietary stored in on-chip Flash/ROM. Pin-compatible ROM versions are also available.

The on-board event manager permits center- and/or

**LF2401A Controller Block Diagram**



*The LF2401A controller is the smallest control-optimized controller at only 7 mm × 7 mm and features 8 Kwords of Flash memory and 40 MIPS of processing power.*

edge-aligned pulse width modulation (PWM) generation, programmable deadband to prevent shoot-through faults, and synchronized analog-to-digital conversion. A serial communications interface (SCI) is integrated on all devices

to provide asynchronous communication to other devices in the system. To maximize device flexibility, functional pins are also configurable as general-purpose inputs/outputs (GPIOs).

## Get started today

Get started today with a full array of software and hardware tools including evaluation modules, application-specific software and algorithms for virtually all motor types.

The TMDSEZD2401 eZdsp™ Starter Kit is a standalone module that allows evaluators to examine certain characteristics of the TMS320LF2401A controller and determine if it meets their application requirements. This module has a single-chip, parallel-port-to-JTAG scan controller. Therefore, the module can be operated without additional development tools such as an emulator. Furthermore, the module is an excellent platform to develop, demonstrate and run software for the LF2401A controller.



The LF2401A eZdsp Starter Kit offers a complete set of development tools.

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