

# Fact Sheet

## Military Semiconductor Products

PRODUCT PREVIEW

**SMJ320LC549**

April 2002

### HIGHLIGHTS

The SMJ320LC549 is the first military device offered from the C54x™ family of fixed point DSPs that combines high performance with low power consumption. This product features an advanced modified Harvard architecture, a CPU with application-specific hardware logic, on-chip memory, on-chip peripherals and a highly specialized instruction set.

The enhanced Harvard architecture is built around one program and three data buses for increased performance and versatility. The advanced CPU is designed with a high degree of parallelism and application specific hardware logic for increased performance. This, coupled with advanced IC processing technology, combines to create a product that offers a superior power per function ratio.

### KEY FEATURES/BENEFITS

- 60 MIPS operation
- 8 MWord Address Space (23-bit Program Counter)
- 32K x 16-Bits of On-Chip Memory
- 16K x 16-Bits of On-Chip ROM
- Two Buffered Serial Ports (BSP)
- One Time Division Multiplexed (TDM) Serial port
- 3.3-V operation
- 8-Bit Host Port Interface (HPI)
- 16-Bit Timer
- 40-Bit ALU w/ dual 40-Bit Accumulators
- 17x17 Multiplier

### DIE SIZE

Size of die: 291 x 281 mils

### PACKAGING

HFG - Military Ceramic 164-pin Non-Conductive Tie Bar QFP

### POWER DISSIPATION

Thermal data: TBD

### ARCHITECTURE

The 'LC549 is built around a modified Harvard architecture that maximizes processing power with three buses for data memory and one for program memory. The CPU contains a 40-bit ALU, two 40-bit accumulators, a barrel shifter, a 17x17 multiplier, exponential encoder, and a compare-select-and-store unit. The on-chip memory contains Dual and Single access RAM and a boot ROM. The peripherals on the 'LC549 include 2 buffered serial ports, a TDM port, HPI, timer, PLL and IEEE 1149.1 scanning logic circuitry.

---

## TOOLS

Code Composer Studio™ (CCS) is a fully integrated development environment supporting Texas Instruments industry-leading TMS320C6000™ and TMS320C5000™ platform of DSPs. Its complete and easy-to-use set of development tools addresses each phase of the code development cycle. Along with the traditional tools for editing, building, debugging, code profiling and project management, Code Composer Studio offers unique features such as:

- TI's highly advanced C compiler
- Real-Time Analysis with RTDX™ and DSP/BIOS™
- An open plug-in architecture for third party plug-ins
- Advanced data visualization

C549 EVM Board    The TMS320C549 Evaluation Module Kit developed by Spectrum Digital gives designers a complete and cost effective way to take their designs from concept to production. P/N: TMD53P603120

C54x DSKplus      The TMS320C5402 DSK is a low-cost, comprehensive development tool that allows new DSP designers to explore the TMS320C5000™ DSP architecture and begin developing C5000™-based applications today. P/N: TMDX320005402

## SUPPORT

- Product Information Center: (972) 644-5580
- DSP Hotline Internet URL Address: <http://www.ti.com/sc/docs/dsps/hotline/support.htm>
- C54x Internet URL Address: <http://www.ti.com/sc/docs/products/dsp/c5000/index.htm>  
(Commercial DSP Information)
- Military DSP Fixed Point Information URL Address:  
<http://www.ti.com/sc/docs/products/military/processr/fixptdsp.htm> (Military DSP Information)
- DSP Bulletin Board FTP site: <ftp://ftp.ti.com/mirrors/tms320bbs/>  
– application code, questions and answers (technical, non-real time), development tools.

## SUPPORT LITERATURE

|         |   |
|---------|---|
| SPRS077 | 'LC549 Commercial DSP Data Sheet            |
| SPRU307 | C5000 DSP FAMILY FUNCTIONAL OVERVIEW        |
| SPRU210 | C54x DSP User's Reference Set               |
| SPRU131 | C54x DSP CPU and Peripherals Volume 1       |
| SPRU172 | C54x DSP Mnemonic Instruction Set Volume 2  |
| SPRU179 | C54x DSP Algebraic Instruction Set Volume 3 |
| SPRU173 | C54x DSP Applications Guide Volume 4        |
| SPRU302 | C54x DSP Enhanced Peripheral Set Volume 5   |

C5000, C54x, Code Composer Studio, DSP/BIOS, RTDX, TMS320C5000 and TMS320C6000 are trademarks of Texas Instruments.

---



## IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

### Mailing Address:

Texas Instruments  
Post Office Box 655303  
Dallas, Texas 75265