Fact Sheet

Military Semiconductor Products

PRODUCT PREVIEW

SMJ320VC5416
June 2000

HIGHLIGHTS

The SMJ320VC5416 is the highest performance single core device offered from the C54x™ family of fixed point DSPs that combine 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

- 150 MIPS operation
- 8 MWord Address Space (23-bit Program Counter)
- 128K x 16-Bits of On-Chip Memory
- 16K x 16-Bits of on chip ROM
- Three Multichannel Buffered Serial Ports (McBSP)
- Six Channel Direct Memory Access (DMA) Controller
- 1.5-V core/ 3.3-V I/O voltage
- 8/16-Bit Enhanced Parallel Host Port Interface (HPI)
- 16-Bit Timer
- 40-Bit ALU w/ dual 40-Bit Accumulators
- 17x17 Multiplier

PACKAGING

HFG - Military Ceramic 164-pin Non-Conductive Tie BarQFP

POWER DISSIPATION

Thermal data: TBD

ARCHITECTURE

The ‘VC5416 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 ‘VC5416 includes 3 multichannel buffered serial ports, 8/16-Bit HPI, timer, PLL and IEEE 1149.1 scanning logic circuitry.

TEXAS INSTRUMENTS

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: TMDS3P603120

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.

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

SPRS095	‘C5416 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

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