TMS320C66x multicore DSPs for high-end industrial automation

Delivering real-time high performance, low power, scalability and cost efficiency

Texas Instruments' TMS320C66x multicore DSPs offer the high accuracy, real-time performance and easy-to-use software and development tools required for processing-intensive industrial applications. These applications include equipment such as:

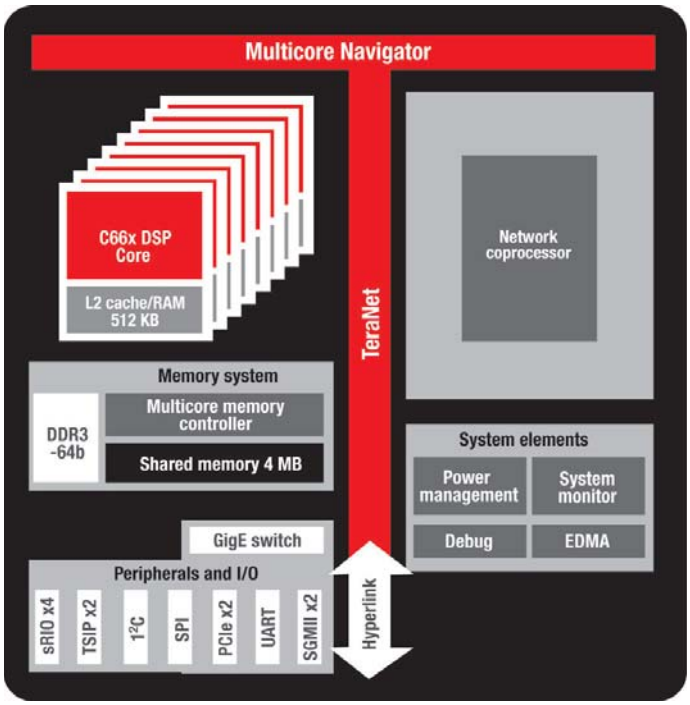
Smart cameras/frame grabbers	Vision system controllers
Industrial barcode readers	Optical inspection systems
Paper/currency inspecting equipment	Specialized surveillance systems
Industrial printers and scanners	Programmable logic controllers (PLCs/PACs)

Key features

- Family of pin compatible DSPs comprising one, two, four or eight C66x cores running at 1.25 GHz and delivering up to 320 GMACs/160 GFLOPs of fixed- and-floating point performance
- Large on-chip memory and multiple high-speed serial interfaces
- Free multicore software development kit enabling easier programming
- Low-cost evaluation module starting at U.S. $399
- Extensive third-party network providing hardware and software support

Industrial automation manufacturers can choose a range of solutions from TI's family of pin-compatible multicore DSPs, including the TMS320C6671, TMS320C6672, TMS320C6674 and TMS320C6678, providing, respectively, one, two, four or eight C66x fixed- and floating-point DSP cores. The breadth of TI's multicore DSP portfolio enables the development of multi-function hardware for many high-end industrial applications.

The flagship TMS320C6678 DSP, the industry's highest performing multicore DSP solution, features eight 1.25-GHz DSP cores, effectively providing a 10-GHz DSP delivering 320 GMACs and 160 GFLOPs of combined fixed- and floating-point performance. These benchmark-busting features enable developers to achieve higher system integration, saving board space and cost and reducing overall power consumption.



Block diagram of TMS320C6671/2/4/8 solution. TI's multicore architecture, as well as the powerful processing power of each individual core, make C66x DSPs an ideal fit for industrial automation applications.

Easing development with multicore software and tools

TI offers optimized libraries, support for the OpenMP programming model, SYS/BIOS™ Realtime Operating System, Linux™ support in a free multicore software development kit (MCSDK) to developers working with its C66x multicore DSPs. Optimized libraries include free IMGLIB and VLIB, for image processing-oriented applications, and DSPLIB and

MATHLIB for real-time signal processing support. TI's MCSDK also includes demo software showing a multicore image-processing example and a fast Fourier transform (FFT) based signal-processing example.

To further ease development, TI offers a low-cost TMS320C6678 "Lite" Evaluation Module (EVM). Starting at U.S. $399, the C6678 EVM includes TI's MCSDK and Code Composer Studio™ integrated development environment, allowing programmers to quickly come up to speed on the TMS320C66x platform.

▲ *A comprehensive low-cost evaluation module (EVM) starting at U.S. $399 enables easier development and evaluation of TI's C66x multicore DSPs.*

For additional information on TI's multicore DSPs, software and low-cost EVMs, please visit **www.ti.com/c66multicore**.

TI Worldwide Technical Support

Internet

TI Semiconductor Product Information Center Home Page
support.ti.com

TI E2E™ Community Home Page
e2e.ti.com

Product Information Centers

Americas	Phone	+1(972) 644-5580
Brazil	Phone	0800-891-2616
Mexico	Phone	0800-670-7544
	Fax	+1(972) 927-6377
	Internet/E-mail	support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone

European Free Call	00800-ASK-TEXAS (00800 275 83927)
International	+49 (0) 8161 80 2121
Russian Support	+7 (4) 95 98 10 701

Note: The European Free Call (Toll Free) number is not active in all countries. If you have technical difficulty calling the free call number, please use the international number above.

Fax	+(49) (0) 8161 80 2045
Internet	support.ti.com/sc/pic/euro.htm
Direct Email	asktexas@ti.com

Japan

Phone	Domestic	0120-92-3326
Fax	International	+81-3-3344-5317
	Domestic	0120-81-0036
Internet/E-mail	International	support.ti.com/sc/pic/japan.htm
	Domestic	www.tij.co.jp/pic

Asia

Phone

International	+91-80-41381665
Domestic	Toll-Free Number

Note: Toll-free numbers do not support mobile and IP phones.

Australia	1-800-999-084
China	800-820-8682
Hong Kong	800-96-5941
India	1-800-425-7888
Indonesia	001-803-8861-1006
Korea	080-551-2804
Malaysia	1-800-80-3973
New Zealand	0800-446-934
Philippines	1-800-765-7404
Singapore	800-886-1028
Taiwan	0800-006800
Thailand	001-800-886-0010

Fax	+8621-23073686
E-mail	tiasia@ti.com or ti-china@ti.com
Internet	support.ti.com/sc/pic/asia.htm

Important Notice: The products and services of Texas Instruments Incorporated and its subsidiaries described herein are sold subject to TI's standard terms and conditions of sale. Customers are advised to obtain the most current and complete information about TI products and services before placing orders. TI assumes no liability for applications assistance, customer's applications or product designs, software performance, or infringement of patents. The publication of information regarding any other company's products or services does not constitute TI's approval, warranty or endorsement thereof.

B122010

The platform bar, Code Composer Studio, E2E and SYS/BIOS are trademarks of Texas Instruments.
All other trademarks are the property of their respective owners.

© 2011 Texas Instruments Incorporated
Printed in U.S.A. by (Printer, City, State)

Texas Instruments

SPRT618

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 TI 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. Information of third parties may be subject to additional restrictions.

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.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products		**Applications**	
Audio	www.ti.com/audio	Communications and Telecom	www.ti.com/communications
Amplifiers	amplifier.ti.com	Computers and Peripherals	www.ti.com/computers
Data Converters	dataconverter.ti.com	Consumer Electronics	www.ti.com/consumer-apps
DLP® Products	www.dlp.com	Energy and Lighting	www.ti.com/energy
DSP	dsp.ti.com	Industrial	www.ti.com/industrial
Clocks and Timers	www.ti.com/clocks	Medical	www.ti.com/medical
Interface	interface.ti.com	Security	www.ti.com/security
Logic	logic.ti.com	Space, Avionics and Defense	www.ti.com/space-avionics-defense
Power Mgmt	power.ti.com	Transportation and Automotive	www.ti.com/automotive
Microcontrollers	microcontroller.ti.com	Video and Imaging	www.ti.com/video
RFID	www.ti-rfid.com		
OMAP Mobile Processors	www.ti.com/omap		
Wireless Connectivity	www.ti.com/wirelessconnectivity		

TI E2E Community Home Page e2e.ti.com

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2011, Texas Instruments Incorporated