

TMS320C6748 DSP Development Kit

Low-cost development kit to jump-start real-time signal processing innovation



Texas Instruments' TMS320C6748 DSP development kit is a new, robust low-cost development board designed to spark innovative designs based on the C6748 processor. Along with TI's new included C6748 SYS/BIOS™ Software Development Kit (SDK), the C6748 development kit is ideal for real-time analytics applications, such as fingerprint recognition and face detection. It includes the C6748 baseboard, SD cards with two demos, BIOS and SDK, and Code Composer Studio™ (CCStudio) Integrated Development Environment, a power supply and cord, VGA cable and USB cable.

Key features and benefits

- TMS320C6748 DSP software and development kit to jump-start real-time signal processing innovation for biometric analytics applications, audio and more
- Reduces design work with downloadable and duplicable board schematics and design files
- Fast and easy development of applications requiring fingerprint recognition and face detection with embedded analytics
- Low-power TMS320C6748 applications processor
- Scalable platform enables a variety of performance, power, peripheral and price options
- 128-MByte DDR2 SDRAM
- 128-MByte NAND Flash memory
- Micro SD/MMC slot
- USB and SD connectors
- Wide variety of peripheral interfaces
- Line in, headphone out, MIC-in ports
- Expansion connectors
- Includes Code Composer Studio IDE 4.0
- Full documentation on CD-ROM

Technical details

The C6748 development kit includes everything needed to start demonstrating applications in less than 10 minutes and to begin writing code in less than an hour.

The development kit is based on the TMS320C6748, a low-power dual-core applications processor based on a fixed-point C64x+™ instruction set and the floating-point C67x+™ instruction set. It provides significantly lower power than other members of the TMS320C6000™ platform of DSPs and provides both floating-point precision and fixed-point performance in the same device.

With a wide variety of standard interfaces for connectivity and storage, the C6748 development kit enables developers to easily bring audio, video and other signals onto the board. Expansion headers allow customers to extend the functionality of the kit to include a camera sensor from Leopard Imaging or an LCD screen. Included interfaces are:

- USB serial port
- Fast Ethernet port (10/100 Mbps)
- USB host port (USB 1.1)
- USB OTG port (USB 2.0)
- SATA port (3 Gbps)
- VGA port (15-pin D-SUB)
- LCD port (Beagleboard-XM connectors)
- 3 audio ports
 - 1 line in
 - 1 line out
 - 1 MIC in
- Composite in (RCA jack)
- Leopard Imaging camera sensor input (32-pin ZIP connector)
- Authentic fingerprint sensor

Easy to write and optimize DSP code

Designers can readily target the C6748 DSP through TI's robust and comprehensive Code Composer Studio (CCStudio) Integrated Development Environment (IDE). CCStudio IDE includes an efficient optimizing C/C++ compiler assembler, linker, debugger; integrated CodeWright editor with CodeSense technology for faster code creation; data visualization; a profiler and a flexible project manager. CCStudio IDE also includes a DSP/BIOS™ real-time kernel and Chip Support Library.

TI's new C6748 SYS/BIOS SDK is included on a SD card with the kit. The SDK includes several demonstrations for biometric analytics applications and also includes the latest SYS/BIOS real-time kernel, C6748 StarterWare software package and code generation tools. Designers can begin writing code in less than one hour with the latest tool chain GCC 4.5 and the latest TI DSP software components (SYS/BIOS and SysLink).

StarterWare provides a C-based OS-independent platform support for the C6748



DSP platform. It provides device abstraction layer libraries, peripheral programming examples such as Ethernet, graphics and USB, and board-level example applications. StarterWare can be used stand-alone or with a real-time operating system (RTOS).

Out-of-box demos in less than 10 minutes

Included in the C6748 development kit is all the hardware and software needed for two demonstrations, a fingerprint-recognition demo and a face-detection demo. The fingerprint recognition demo uses the included fingerprint sensor (swipe-based) from Authentec and allows multiple users to be enrolled. The demo delivers 100% accuracy of results in less than 300 msec to match the fingerprint on the C674x floating-point core.

The included face-detection demo is a frontal face-detection open-source algorithm that allows multiple face detections in a frame. The face detection demo supports D1 (720×480) resolution image processing with 0.5 frames per second face detection. With the

two included demos, designers can go from box to demo in less than 10 minutes.

Simple hardware development and software compatibility

TI helps reduce design work with free downloadable and duplicable board schematics and design files following TI's proven design rules. For designs needing only DSP performance, designers can scale between the software and pin-to-pin compatible TMS320C6748/6/2 DSPs as well as other software-compatible TMS320C6000™ DSPs available at a variety of performance, power, peripheral and price options. Designers can also select the ideal combination of ARM and DSP performance needed for any design with the software and pin-compatible OMAP-L138/2 DSP+ARM9™ processors to add high-level operating systems such as Linux™.

The C6748 development kit is supported by TI's online community e2e.ti.com. Complete collateral, CCStudio IDE drivers, Chip Support

Library (CSL) and all the required production-quality documentation for the C6748 kit is available today. Complete schematics and layout files are available for the tool so customers can use this as a reference for their own system development.

TI's extensive Developer Network, as well as a complete Chip Support Library, comprehensive application notes, reference designs, application guides, videos and online communities help designers develop new products based on the C6748 DSP with confidence and ease.

Get started today

The robust, low-cost C6748 development kit (part number: TMDXLCDK6748) is available now XXXXXXXXXX Pricing includes the TMS320C6748 baseboard as well as the industry-leading CCStudio IDE v.4, StarterWare software package, demo software and BIOS and Linux SDK – everything you need to run demos in less than 10 minutes.

www.ti.com/c6748lcdk

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	www.ti.com/asktexas	
Direct E-mail	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		<u>Toll-Free Number</u>
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.

B011012

The platform bar, C64x+, C67x+, Code Composer Studio, DSP/BIOS, E2E, SYS/BIOS and TMS320C6000 are trademarks of Texas Instruments. All other trademarks are the property of their respective owners.

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

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
OMAP Mobile Processors	www.ti.com/omap
Wireless Connectivity	www.ti.com/wirelessconnectivity

Applications

Automotive and Transportation	www.ti.com/automotive
Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Video and Imaging	www.ti.com/video

TI E2E Community Home Page

e2e.ti.com

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2012, Texas Instruments Incorporated