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 for the low cost of U.S. $195. 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

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