

## Qcamera™

Provide end users with camera phones that rival the picture quality and features of today's popular digital still cameras



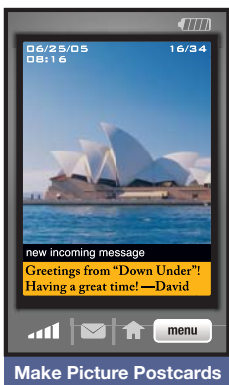
QUALCOMM CDMA Technologies (QCT) offers wireless operators and device manufacturers Qcamera™, an affordable digital camera solution that provides end users with high-quality imaging and flexible image manipulation through their wireless device. The Qcamera solution is integrated into select QUALCOMM Mobile Station Modem™ (MSM™) chipsets and is part of the Launchpad™ suite of enabling technologies, which offers wireless operators and manufacturers a cost-effective, scalable and timely solution for providing advanced wireless data services.

Because the Qcamera engine is integrated into select MSM chipsets, manufacturers can combine Qcamera functionality with different Launchpad applications, including QUALCOMM's Qtv™, Qcamcorder™, Qvideophone™ and gpsOne® solutions. This seamless integration enables compelling multimedia and enterprise applications — from digital images embedded with position location data, to picture postcards with 3D graphics and sound, to applications that can scan business cards, wireless bluetooth direct printing and more.



The Qcamera solution enables device manufacturers to accelerate time-to-market and cost-effectively offer an exceptional camera phone capable of providing end users with the most rewarding user experience and highest-quality digital pictures. And since the Qcamera solution offers the performance and features that rival many of the best digital cameras, it provides wireless operators with the opportunity to capitalize on the ever-growing digital camera market. Finally, Qcamera allows third-party developers to leverage the flexibility of the QUALCOMM OpenBREWapi™ and create many new BREW®-enabled camera phone applications in a timely manner.

HIGH RESOLUTION PHOTOS • PICTURE MESSAGING • ON-CAMERA PHOTO EDITING  
PHOTO ENHANCED APPLICATIONS • MOBILE PHONE ALBUM



### Qcamera Features

- Integrated, flexible interface to CCD and CMOS sensors, with support for up to 8.0 megapixel camera sensors [MSM dependent]
- OEM configurable hardware-based image signal processor augmented with QDSP and 32-bit ARM CPU
- Up to 30 fps viewfinder with flexible frame size, refresh rate and special effects
- Hand jitter reduction, adaptive lighting, red-eye removal, whiteboard
- Zoom control, preview mode, burst mode, self timer and flash/white LED control
- Interoperability with other applications in the Launchpad suite and the BREW API, including GPS picture location
- Standard feature included with AMSS™ and DMSS™ multimode subscriber software
- JPEG encode (JFIF and EXIF 2.2 compliant) at pre-set (high, medium, low) or user-defined quality levels

# Qcamera™

## Qcamera Benefits

- Eliminates the need for a separate camera processor, saving bill-of-materials (BOM) costs and enabling manufacturers to design smaller, sleeker wireless products
- Higher quality image processing than typical camera module with highly programmable hardware-accelerated Image Signal Processor, Powerful DSP processor for 2D post-processing, 32-bit ARM CPU for high speed, high quality imaging algorithms, autofocus control and image editing
- More image processing functions available than typical camera module such as hand-jitter reduction, red-eye removal, whiteboard
- Software Tools allow OEMs to optimize color preferences to meet in-house imaging standards, regional preferences and differentiate against standard image sensor settings
- Powerful image library that allow users to manipulate, correct and change images directly on the handset, eliminating the need for uploading to a computer for post-processing
- Creates a rich development environment through integration with the Launchpad suite and the OpenBREWapi, enabling 3rd party imaging applications to be offered by mobile operators.

## Qcamera Image Processing Library Features

- Full image processing capabilities, including crop, resize, rotation, image blurring and sharpening, image overlay and picture frame support
- Color correction and manipulation, including hue/saturation, gray scale, negative and sepia
- Save pictures to FLASH or MMC or export images as textures for 3D
- BREW Interfaces for third party imaging/value-added functionality

## Launchpad Suite

Qcamera is part of the Launchpad suite of integrated applications technologies, which offers wireless operators and manufacturers a cost-effective, scalable and timely solution for providing advanced wireless data services. Launchpad features power advanced applications and services using multimedia, position location, connectivity and storage capabilities. Select Launchpad features are integrated onto each QUALCOMM chipset.

### QUALCOMM PLATFORMS WITH INTEGRATED QCAMERA SUPPORT

PLATFORM	MAXIMUM RESOLUTION SUPPORT*
Convergence	8.0 Megapixel
Enhanced Multimedia	4-5.0 Megapixel
Multimedia	3.0 Megapixel
Value	Up to 2.0 Megapixel

\*Maximum resolution support is dependent on chipset.

## Go Online

Please visit [www.cdmatech.com/chip\\_select.jsp](http://www.cdmatech.com/chip_select.jsp) to view the chipset comparison tool that details specific chipset features. Each chipset in QUALCOMM's platforms has a different combination of features to meet various manufacturer and operator requirements. Many features listed here are common to most, while others are exclusive to a single chipset.

## About QUALCOMM

QUALCOMM CDMA Technologies is shaping and creating new ways to communicate. Working with manufacturers and operator partners worldwide, we develop systems that provide the foundation for tomorrow's wireless services while delivering what the market needs today.

Our industry-leading CDMA engineers create detailed reference designs to accelerate testing and deployment for our partners. Our chipsets and systems bring advanced features and functionality to legacy and next-generation networks and devices. With QUALCOMM CDMA Technologies, manufacturers and wireless operators can deliver the products and services the world wants now and be first to market with future developments.

