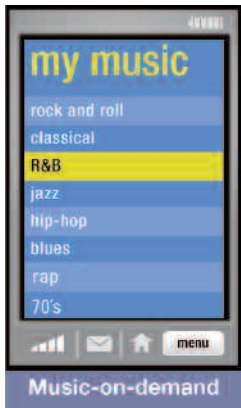# Mobile Video Solutions

## Drive revenue with compelling mobile video applications on 3G networks

Music-on-demand

Wireless carriers and handset manufacturers worldwide see mobile video applications for 3G wireless networks as the driving force behind mass adoption of multimedia services. To enable wireless carriers and handset manufacturers to reap the rewards of mobile video, QUALCOMM CDMA Technologies (QCT) offers three mobile video solutions: Qtv™ a real-time decoder that enables the streaming and downloading of video content; Qcamcorder™, a real-time encoder that records video; and Qvideophone™, a two-way videotelephony solution that enables mobile videoconferencing. These enhanced mobile video solutions are three key components of QUALCOMM's Launchpad™ suite of integrated technologies.

By selecting QUALCOMM's integrated single-chip mobile video solutions, handset manufacturers can quickly and affordably create customized, multimedia-rich devices to address broader market segments and help maintain a loyal customer base without the need for expensive multimedia companion processors. The Qtv, Qcamcorder and Qvideophone solutions are fully integrated software and hardware video solutions that maximize the use of QUALCOMM's powerful Mobile Station Modem™ (MSM™) platform to help decrease hardware costs, development costs and board space required to implement industry-leading video solutions such as video-on-demand, music-on-demand, mobile video messaging, video broadcasting and videoconferencing.

Video-on-demand

SHOOT MOVIES • WATCH VIDEOS • VIDEO-ON-DEMAND • MUSIC-ON-DEMAND • VIDEO MESSAGING • MOBILE CONFERENCING

Qtv™
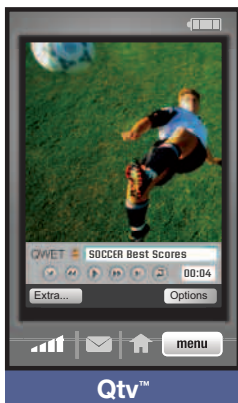
Qtv Decoder

Qtv is a feature-rich software and hardware video decoder that enables mobile devices to stream, download and playback multimedia content. The Qtv solution is a fully compliant, standards-based 3GPP/3GPP2 MPEG-4/H.263/H.264 solution and is the heart of wireless video applications, including streaming video-on-demand (VOD), streaming music-on-demand (MOD), mobile viewing of real-time content (live cameras) and playback of video messages. Qtv also supports many popular proprietary video and audio codecs including Microsoft® Windows Media™ and RealNetworks®.

Mobile Video Solutions

Qtv Features

• 3GPP/3GPP2 standards-compliant video decoder solution

• Video codecs supported: MPEG-4, H.263, H.264, Real Networks, Windows Media

• Audio codecs supported: QCELP, EVRC, AMR-NB, AAC, aacPlus and aacPlus v2 for high fidelity audio applications

• Support for broadcasting standards including SDMB, MediaFLO, BCMCS, ISDB-T and DVBH

• Protocol support: RTSP over TCP, RTP/RTCP UDP and Session Description Protocol (SDP)

• DSP and hardware accelerated to ensure high performance

• Proven interoperability with leading streaming servers including: RealNetworks®, Apple® QuickTime®, Microsoft® Windows Media®, OnTimetek, PacketVideo and Nextreaming

• Feature-rich reference application that can be customized to meet specific customer UI requirements including:

  - Play, stop, pause, fast-forward, rewind, playlist and looping functions
  - Brightness, contrast control
 - Media file information function
  - Rotation and upscaling

Qtv: streaming and downloading of video content

QUALCOMM PLATFORMS WITH INTEGRATED QTV SUPPORT		
PLATFORMS	**FEATURES***	**PERFORMANCE**
Convergence	• Video: MPEG-4 / H.263 / H.264 / RealVideo / Windows Media • Audio: AAC, aacPlus™, Enhanced aacPlus (V2), AMR-NB, EVRC, QCELP, RealAudio, Windows Media Audio • Image Sizes: VGA, CIF, QVGA, QCIF • File Extensions: .3gp, .3g2, .mp4, .aac, .m4a, .amc, .k3g, .skm, .rn/rm, .wmv/.wma	Playback: 30fps @ VGA Streaming: 15fps @ VGA
Enhanced Multimedia	• Video: MPEG-4 / H.263 / H.264 / RealVideo / Windows Media • Audio: AAC, aacPlus, Enhanced aacPlus (V2), AMR-NB, EVRC, QCELP, RealAudio, Windows Media Audio • Image Sizes: QVGA, QCIF, sQCIF • File Extensions: .3gp, .3g2, .mp4, .aac, .m4a, .amc, .k3g, .skm, .rn/rm, .wmv/.wma	Playback: 30fps @ QVGA Streaming: 15fps @ QVGA
Multimedia	• Video: MPEG-4 / H.263 / H.264 / RealVideo / Windows Media • Audio: AAC, aacPlus, Enhanced aacPlus (V2), AMR-NB, EVRC, QCELP, Real Audio, Windows Media Audio • Image Sizes: QCIF, sQCIF • File Extensions: .3gp, .3g2, .mp4, .aac, .m4a, .amc, .k3g, .skm, .rn/rm, .wmv/.wma	Playback: 15fps @ QCIF Streaming: 15fps @ QCIF

* Not all features are available on all chipsets.

Launchpad Suite

Qtv, Qcamcorder and Qvideophone are part of the Launchpad™ suite of integrated 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.
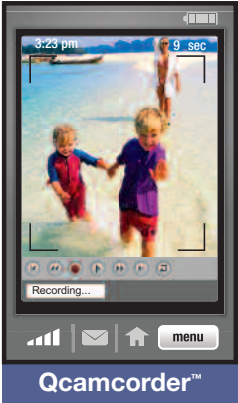
Qcamcorder™

Qcamcorder Encoder

Qcamcorder is a real-time video encoding solution that lets wireless consumers record video and audio using their mobile phone. Mobile users can now record video, save the file in memory, then share their experience with friends by sending it as a video message. Built upon QUALCOMM's existing chipset-integrated camera architecture and APIs, the Qcamcorder solution integrates quickly and easily into mobile devices. The Qcamcorder encoder is a fully compliant, standards-based (3GPP/3GPP2) MPEG-4/H.263/H.264 encoding software solution.

Qcamcorder Features

- 3GPP/3GPP2 standards-compliant video decoder solution
- Video codecs supported: MPEG-4, H.263, H.264
- Audio codecs supported: QCELP, EVRC, AMR-NB and AAC
- Multiple encode resolutions supported: sQCIF, QCIF, QVGA and VGA
- DSP and hardware accelerated to ensure high performance
- Feature-rich reference application that can be customized to meet specific customer UI requirements including:
  - Video preview and viewfinder; record, stop, pause/resume functions
  - Zoom, brightness and contrast controls
  - Audio dubbing—replace the audio track with voice or music on a previously recorded video file
  - Timed text—add text to display or scroll at specific times in a video file
  - Video overlay—overlay an image or graphic on a video at a specific time; example are video frames or an advanced feature like fade-in/fade-out

Qcamcorder: recording of video in real time

QUALCOMM PLATFORMS WITH INTEGRATED QCAMCORDER SUPPORT		
PLATFORMS	**FEATURES***	**PERFORMANCE**
Convergence	• Video: MPEG-4 / H.263 / H.264 • Audio: AAC, AMR-NB, EVRC, QCELP • Image Sizes: VGA, CIF, QVGA, QCIF • File Extensions: .3g2, .3gp, .amc, .k3g, .skm, .mp4, .aac	30fps @ VGA
Enhanced Multimedia	• Video: MPEG-4 / H.263 / H.264 • Audio: AAC, AMR-NB, EVRC, QCELP • Image Sizes: QVGA, QCIF, sQCIF • File Extensions: .3g2, .3gp, .amc, .k3g, .skm, .mp4, .aac	15fps @ QVGA
Multimedia	• Video: MPEG-4 / H.263 • Audio: AMR-NB, EVRC, QCELP • Image Sizes: QCIF, sQCIF, 96x80 • File Extensions: .3g2, .3gp, .amc, .k3g, .skm, .mp4	15fps @ QCIF

* Not all features are available on all chipsets.

Qvideophone™

Qvideophone

Qvideophone is a two-way videoconferencing solution that has been tailored to 3G networks including CDMA2000® 1xEV-DO and WCDMA (UMTS®) networks. Consumers can conduct real-time mobile videotelephony calls with other mobile users and see the person on the other end of the call. The Qvideophone solution provides manufacturers and operators with a high-performance, fully integrated videoconferencing solution based on industry standards to meet the growing enterprise and consumer demand for two-way video communication worldwide.

Qvideophone Features

- 3GPP and 3GPP2 standards-compliant real-time video telephony solution
- H.324M compliant for circuit-switched video telephony
- SIP compliant for IP-based video telephony
- Video codecs supported: MPEG-4, H.263
- Audio codecs supported: AMR-NB, EVRC
- Proven interoperability with wireless carriers, handset manufacturers and wireless infrastructure vendors
- Quick-connect technology for reduced call setup time
- Hardware accelerated decoding and encoding to provide high performance
- Feature-rich reference application that can be customized to meet specific customer UI requirements including:
  - Picture-in-picture support; video zooming
  - Video or audio mute capability
  - Consumer defined encode/quality settings

Qvideophone: two-way videoconferencing on mobile handsets

QUALCOMM PLATFORMS WITH INTEGRATED QVIDEOPHONE SUPPORT

PLATFORM	FEATURES*	PERFORMANCE
Convergence	• Video: MPEG-4 / H.263 • Audio: AMR-NB, EVRC • H.324M / SIP Protocol Stacks • Image Sizes: QCIF	15fps @ CIF**
Enhanced Multimedia	• Video: MPEG-4 / H.263 • Audio: AMR-NB, EVRC • H.324M / SIP Protocol Stacks • Image Sizes: QCIF	15fps @ QVGA**
Multimedia	• Video: MPEG-4 / H.263 • Audio: AMR-NB • H.324M • Image Sizes: QCIF	15fps @ QCIF

* Not all features are available on all chipsets.

** Upsampled QCIF image to QVGA or CIF due to uplink air interface bit rate limitations.

Go Online

Please visit 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.

QUALCOMM®
CDMA Technologies