Compact Media Extensions™ (CMX™) Fact Sheet

CMX Software

The CMX software built into QUALCOMM's Mobile Station Modem (MSM) platform chipsets is used to deliver rich multimedia content to mobile handsets. This software can be implemented to provide high quality audio playback (72 polyphony with a 512 kB wavetable) for MIDI-based ringtones and gaming audio. Specific applications that take advantage of the multimedia format include animated ringtones, karaoke, and messaging applications. CMX software plays back QUALCOMM's .pmd file format and also supports proprietary and standardized industry formats including:

--General MIDI Levels 1 and 2

--SP-MIDI

--SMAF Audio

--XMF/DLS

--MFi (requires DoCoMo license)

The CMX multimedia file format has been standardized by 3GPP2 and OMA and is referenced as Compact Multimedia Format (CMF).   This activity was undertaken by QUALCOMM to ensure that the CMF format can be supported globally and that developers have access to create the most dynamic, revenue-generating applications for wireless devices.

CMX Studio Authoring Tool

To create multimedia content in the .pmd file format, QUALCOMM distributes the **CMX Studio**® authoring tool free of charge. Content providers use the CMX Studio authoring tool to create ringtones, karaoke files, wallpapers and screensavers for mobile handsets. As QUALCOMM provides additional functionality to its CMX chipset software, the authoring tool is continually upgraded to ensure content creation compliance. For more information on QUALCOMM's CMX Studio, please visit our on-line inquiry form:

http://www.cdmatech.com/about_us/contact_cmx.jsp

Target Audiences

Handset Manufacturers

Handset manufacturers (OEMs) license CMX software in order to offer advanced audio and time-synchronized multimedia solutions on their handsets. QUALCOMM provides OEMs with the information and files they need to fully implement the entire array of CMX capabilities. OEMs can contact QUALCOMM directly for access to all such materials.

Application and Game Developers

QUALCOMM's audio capabilities are directly accessible by application and game developers, including 3D game developers. These developers can use CMX APIs to take full advantage of all the various CMX-supported audio formats, including MIDI and WAV (QCELP-13K and ADPCM).

CMX game and application audio support includes additional application-specific features, like simultaneous playback of multiple MIDI, QCP and ADPCM tracks, which can be triggered by game and user input events.

Application developers can also make use of the CMF File Format to create highly customized applications that utilize the functionality provided by CMX Studio.

Content Providers

Content providers use the CMX Studio authoring tool to create exciting multimedia content files like ringtones, screensavers, wallpapers and karaoke files by time-synchronizing an array of multimedia elements and saving them as one highly compressed CMX (.pmd) file. The supported multimedia elements include MIDI, WAV (which is compressed to QCP or ADPCM), still images (PNG), animation (SAF and GIF), vibration, LED control, looping, text and text wipe (used for karaoke text effects). The content provider can place these various resources precisely in the CMX Studio timeline to create the desired effects.