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## Hardware Acceleration Delivers High-Quality Video To Mobile Devices

Nov 1, 2010 2:05 PM, By Giles Humpston and Campbell Scott, Tessera Inc.

Innovation in algorithm design, plus a division of the computation between hardware and software, has spawned a new generation of automated video tools that help enhance image results from camera phones.

Ever since the advent of the still camera, the capture and replay of moving images has been an obsession for many. However, in terms of consumer consumption, this realm was dominated mostly by commercial cinema and television. Then it all changed a few years ago. By combining Internet sharing services that could host video content with the ability to capture video clips on mobile phones, video production and consumption proceeded to explode.

To cite one example, the upload rate to YouTube apparently now exceeds 24 hours of new content per minute. This is driven partly by a social trend, and partly by mobile phones themselves. People generally only take digital still cameras and camcorders to events where they think they're likely to capture images, such as a wedding or a gig.

Mobile phones are carried all the time and, hence, are available for spontaneous use. Such spontaneously captured content now dominates the homemade video space. To wit, worldwide camcorder sales in 2010 expect to come in at around 20 million shipments, while camera-phone sales will reach approximately 1.2 billion.

## Mobile-Phone Cameras

Cameras found in mobile phones (camera phones) differ dramatically from those used in digital still cameras and camcorders. Although they perform the exact same function and operate in the same manner, the technology nuances are driven by the form factor of the housing.



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Thin is in for mobile phones, which places severe constraints on the optics design and power availability, the latter due to battery size. All things being equal, the quality of an imaging system is dictated by the lens diameter and imager resolution. Larger lenses result in taller camera modules, while higher-resolution sensors require more power than imagers of lower resolution. It also takes more processor cycles and, thus, battery resources to manipulate larger images.

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