convergence

Is this the 3G

The long awaited, and long delayed, introduction of 3G (third generation) mobile communications still promises to provide the consumer with a new level of connectivity and 'always-on' communications. Users will ultimately benefit from the higher bandwidth on offer, which will enable mobile-commerce (m-commerce), enhanced (multimedia) messaging, mobile computing (high-speed Internet and intranet access) and location-based services

such as route navigation and interactive maps.

Due to the delay, perhaps the average mobile phone user has got used to his or her current communications boundaries, has accepted its limitations and embraced its benefits. Existing services ranging from messaging (e-mail and voicemail), entertainment (ring tones, logos and so on) to information provision (WAP (Wireless Application Protocol) type interface; simple text and graphics) and vertical market applications (logistics and sales force automation).

The 'killer app' for existing mobile phone users, especially the younger user, has surprisingly been text or Short Messaging Service (SMS). No one could have predicted this phenomenon and how it has driven the high take up and usage of mobile phone technology with teenagers.

It's hard to predict what will be the 'killer app' that creates a pull factor for 3G technology. It could be as simple and surprising as text messages, driven by the consumer, rather than being 'marketed' to the users. It is almost certain that the 'killer app' for 3G will need to take advantage of the available bandwidth and always-on connectivity. But this killer application may not emerge from mobile phone handsets - perhaps 3G technology will be pulled into the mainstream market by a more practical application.

Making the most of bandwidth

Not only has the introduction of 3G been hit by worries over funding and the worldwide recession but there are also certain technical issues that need to be overcome. There are ever increasing concerns over the size and power consumption of 3G handsets. These handsets are effectively palm-sized PCs having the capability to receive, store and play real time video along with having high speed Internet access and gaming capability. Early phones have the capability to switch between 3G and 2G to keep the user connected in places where 3G base stations have not yet been deployed (the UK government has stipulated 80
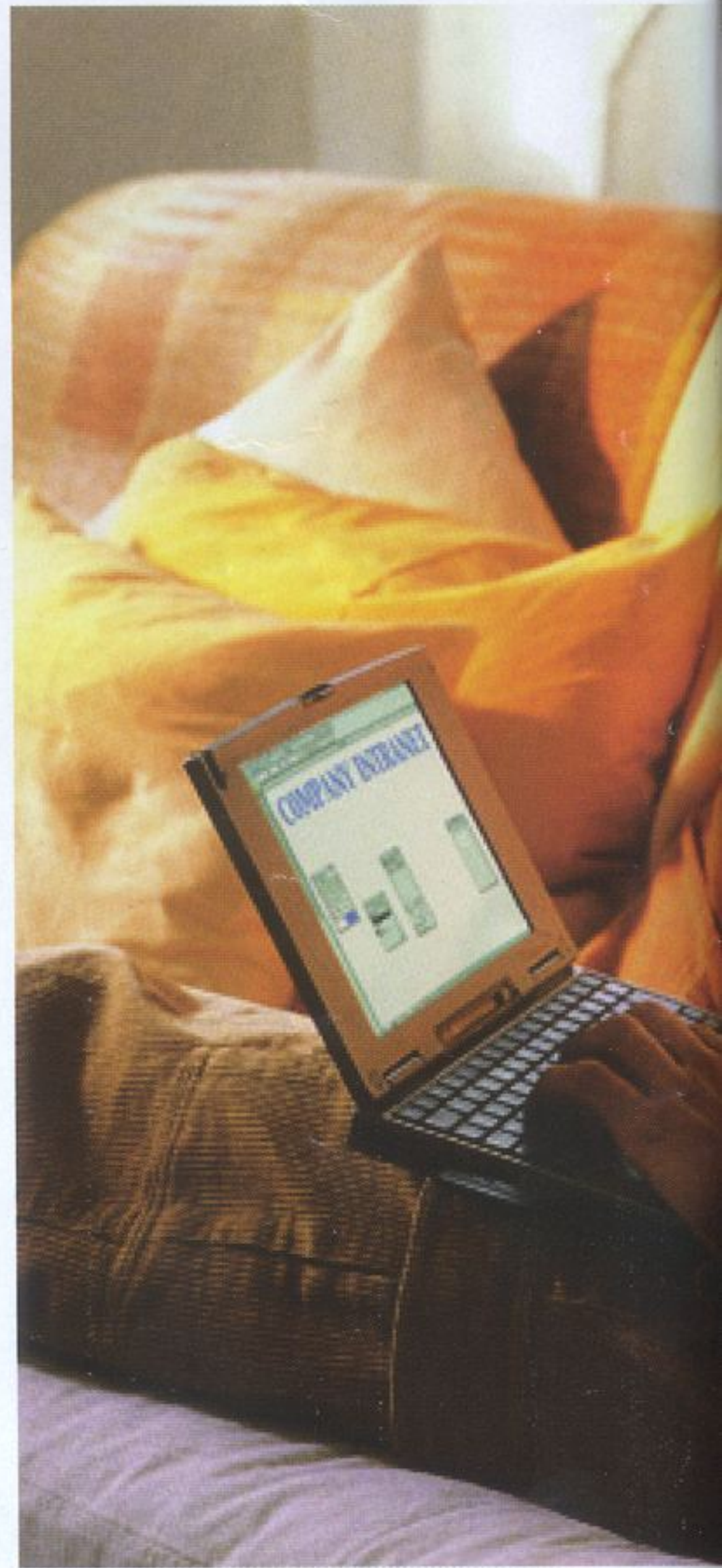
per cent population coverage by 2007). These software intensive pocket PCs may need to be somewhat bulky to begin with and may not appeal to all potential users.

One of the key applications of 3G handsets might be location-based services. The third generation mobile communications network will be the first truly global communication system, which will enable users to take advantage of interactive route finding on a huge scale.

By transplanting 3G technology into in-car telematics systems one can immediately see the benefits. Gone are concerns of size, weight and power consumption. Mounting the system in-dash

G 'Killer App'?

By Karen Parnell, automotive product marketing manager, Xilinx

seems a natural step by providing the most useful function 3G can offer i.e. interactive route finding using real time information on a global basis. Driving from country to country throughout Europe will be made a lot easier as the always-on route guidance system directs the driver seamlessly around, avoiding traffic jams and without the need to change CDs currently required by existing navigation systems. The technology can also pump streaming video and audio to the passengers providing exciting and interactive entertainment.

An alliance between Daimler Chrysler, Siemens and T-Mobile, amongst others,

has been demonstrating in-car 3G services in a specially designed Mercedes Benz. The Mercedes S-Class has been on show in and around Berlin and is designed to give the companies involved an indication of the type of services that can be achieved on the move. The companies claim that the service is currently capable of an average transmission rate of 128kbit/s. The applications that are being demonstrated in the test vehicle cover a range of information, communication and entertainment services. As the car is equipped with UMTS (universal mobile telecommunications system) the driver is able to avoid traffic jams ahead by

accessing information collected by traffic observation cameras on a particular route. Other features include a location-based service that displays information, and where possible with video, on interesting sites in the locality and video conferencing facilities for the business passenger.

Leveraging Telecommunications and Consumer Equipment Design Techniques

In-car telematics systems are the fusion of telecommunications, entertainment and information systems. There is however both a technology and knowledge gap developing in the automotive electronics industry as time scales reduce and sophisticated telecommunications and computing equipment increases. Some cure the problem by poaching consumer equipment and telecomms designers to circumvent the steep learning curve - but as we know there simply still isn't enough engineering knowledge to go round! There is another common denominator in this equation - the vast amount of emerging and changing network interface standards - FlexRay, IDB-C, IDB 1394 and MOST to name but a few.

One technology emerges as the enabling technology for such 'fusion' systems, programmable logic devices (PLDs). For many years designers have been utilising the design flexibility, reconfigurability and ease of use of PLDs in telecommunications and consumer products and the latest range of automotive grade devices (IQ Solutions) from Xilinx are already making their way into telematics designs. By leveraging Xilinx design expertise in these two areas these latest in-car infotainment systems are being brought to market quickly whilst being able to be re-configured to cater for automotive in-car emerging standards and protocols. By utilising the strengths of reconfigurable logic 3G features can be added quickly to existing telematics designs through chip set bridging. Thus allowing a swifter time to market ahead of the high volume Asic solutions.

To learn more about automotive telematics and interfaces, please visit the following websites:
www.flexray.com
www.mostnet.de
www.idbforum.org
www.xilinx.com/automotive
www.daimlerchrysler.com/index_e.htm?
/products/products_e.htm