Ubiquity of USB in consumer goods pushes it into the industrial space

Fred Dart, founder and managing director of FTDI, the USB chipset designer, talks to *Electronics Weekly* about the future of USB and the challenge of being a semiconductor company in the UK

What does the UK need to do to ensure it retains a leading position in global markets?

One of the major worries for the UK economy is how it will be able to establish further technology start-ups or be at the vanguard of innovation if it is no longer in a position to nurture its young engineering talent. University fees of £9,000 a year are certain to have a major impact on the number of school-leavers taking engineering degrees. This could mean the UK loses out to more forward-thinking nations. Possibly special dispensation should be made for courses that clearly benefit the country and help it in achieving its goal to become a truly technology-led economy.

Furthermore, if the UK is to see new high-tech companies emerge and take their places alongside the likes of ARM, Wolfson, CSR, and FTDI, it needs to continue to support schemes that assist start-ups and university spin-outs taking their first steps and trying to secure venture capital funding.

What are the key application areas you are looking at and what do you see as new application opportunities for you in the future?

With the number of USB ports in operation globally now approaching 10 billion, the longevity of this I/O is assured for decades. Consumers know how to use USB, and more and more engineers are capable of designing it into their systems. This bodes well for continued application expansion across markets, but USB is not stopping there.

If you consider some of the new initiatives being developed in the USB Implementers' Forum (USB-IF), including new specifications in audio/video implementation, battery charging, power delivery and USB 3.0 SuperSpeed, the tool box continues to expand. The future looks bright for the continued growth of USB nodes in marketplace, and for a connectivity solution this expanding base provides the fodder for more ideas.

Is USB High-Speed enough, won't there be a shift to USB 3.0, or possibly other I/Os like Thunderbolt, in the near future?

For connectivity technology, the base of equipment and users is critical to the future, especially for wired connections. In wired solutions there is the installed base of physical ports and cables in the equipment. As a result, even though a technology may look good in theory, converting the user base while providing the required connectivity to the equipment that you have already purchased can be very difficult. With USB 3.0, the connectors are designed as supersets so that legacy equipment is supported. So the benefits of the new technology, increased performance, can be experienced if both sets of equipment have been designed accordingly.

But most critical is that current USB High-Speed products are still fully supported and functional. For system designers, USB provides a full grocery list of products, USB Full-Speed, USB High-Speed, USB Super-Speed, battery charging, video support: the choice comes down to the required application and the most effective implementation of it.

Industry pundits, in the past, predicted that USB 2.0 would be usurped by Firewire. This never really happened. History is repeating itself with Thunderbolt. Though it offers higher speeds, I can't see it being cost-effective enough to warrant widespread adoption. The expense involved in incorporating it into system designs, plus the inconvenience of it not being able to interface with the huge number of USB ports already in operation, will not make it particularly attractive.

What challenges in global markets are keeping you busy?

A key challenge for us is to continue making the implementation of USB into system designs, whether these are new or legacy ones, as simple as possible. USB connectivity is continuously proliferating. It has migrated from its traditional stronghold in the consumer space into industrial applications. Engineers who have no previous experience of working with it are being put under considerable pressure as a result.

Would you name one design technology with the largest commercial potential this year?

The Android operating system is clearly going to have a huge effect on the embedded system market, as it already has in the consumer sector. The Android Open Accessories initiative allows devices using Android, such as smartphones or tablet PCs, to control external hardware – from home appliances through to industrial automation equipment. [Our] Vinco platform supports this initiative.

Which geographic regions are proving the most interesting for you?

Asia is the largest market for us in terms of production shipments, but many of these systems are still being designed in Europe and North American. The exciting element is the rapid increase of designs being generated in Asia, especially China. ■

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