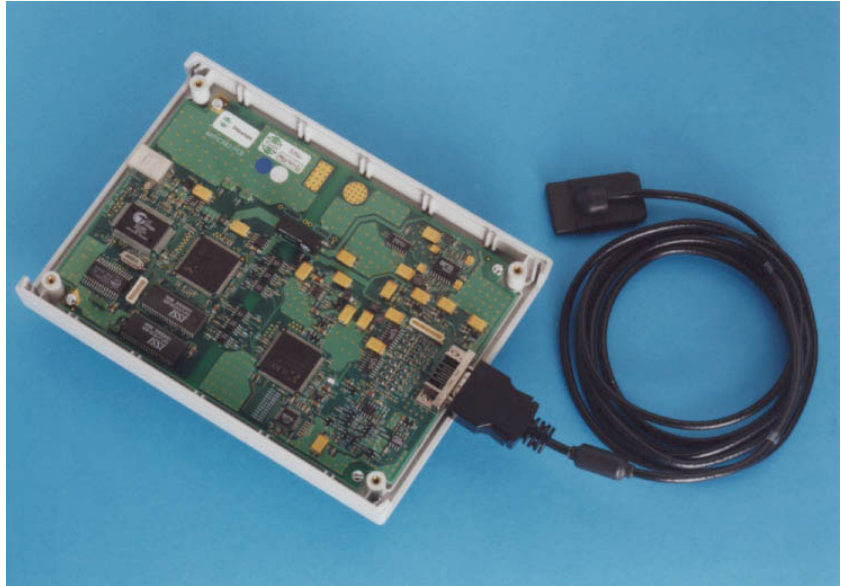


## Case Study

# CCD Imaging

**Plextek has developed hardware and software to drive a megapixel CCD imager for one of its clients. A single compact board draws power from the USB port and performs clock generation, video processing, frame-storing and PC interfacing, resulting in an image displayed on the PC. Having undergone production engineering and certification, the product is now being manufactured economically in large quantities.**



Dental X-Ray Image Processor

There is a growing world-wide market for Dental X-ray Imaging technology due to ease, speed of use and the substantially lower radiation doses compared to traditional film.

E2V Technologies, a major international CCD supplier, commissioned Plextek to develop the drive electronics to interface their new Dental X-ray sensor to a PC such that OEM suppliers could integrate their own image viewer applications. The main challenges were to provide a single board solution capable of being configured to drive three different CCD types whilst operating within the power limits imposed by the USB port, and incorporating a safety barrier meeting stringent medical safety standards.

The design incorporates the following features:

- Drivers and DLL software for Windows and Apple Mac hosts.
- Three phase CCD clock generation and buffering.

- 12 bit Analogue Front End (AFE).
- Industry leading Cypress “ez-usb” single chip USB IC with integral 8051 processor.
- Two Xilinx “coolrunner” CPLDs with code written in VHDL.
- On board 4Mb DRAM image framestore to buffer the CCD to PC data stream.
- Opto-isolation providing 3KV rms+ galvanic isolation between CCD and USB interface.
- Low power consumption to suit USB

This has been a ground breaking project for Plextek in terms of achieving a complete imaging solution incorporating CCD drive circuitry and PC interfacing and one which could have many spin-offs and future applications.

For further information, please contact the Marketing Department:  
Telephone: +44 (0)1799 533200  
Email: [info@plextek.co.uk](mailto:info@plextek.co.uk)