

Advances in medicine: embedded designs for next-generation dental x-ray equipment



Design Challenges:

A dental X-Ray camera used in the doctor's office needs to have the ability to take a sequence of high-resolution images within a short time-frame (frame grabber) with many other requirements, including:

- Grab data stream rates with more than 600Mbit/s
- No packet losses allowed (would cause irrecoverable data)
- Power consumption less than 10 Watt due to limited space and necessity for passive cooling
- More than 10 years of availability
- As few product changes as possible, because each change causes a significant effort in terms of re-qualification and re-certification
- Best possible reliability (high-value product)

Design Solutions

- A dental X-Ray camera delivers a data stream of >600Mbit/s via Ethernet interface
- The incoming data stream is captured in memory, recorded in „real-time“ and gets immediately forwarded to a PC for visualization
- The TQ Systems QorIQ embedded module (Freescale P2020 QorIQ™ P2 platform MCU) provides:
 - A reliable NOR-Flash to boot from
 - 2 x Ethernet 10/100/1000Mbit/s interfaces for the data transfer, including the support for Jumbo--Frames 9.6kBytes
 - 2 GByte DDR3 RAM for storage of the data stream
 - A module size being more than 22% smaller than comparable ones from the competition
 - Product longevity support for more than 10 years



A TQMP2020 module with a Freescale QorIQ can save you design time and money

TQ embedded modules (shown here ready for mounting on a starter kit)



- Are the smallest in the industry, without compromising quality and reliability
- Bring out all the processor signals to the Tyco connectors
- Can reduce development time by as much as 12 months
- The TQMP2020 module comes with a Freescale QorIQ™ Power Architecture® MCU and supports Linux and QNX operating systems
- The full-function STKP2020 Starter Kit is an easy and inexpensive platform to test and evaluate the TQMP2020 module.

For more information on the TQMP2020 and other modules, or to purchase modules or starter kits:

www.convergencepromotions.com/TQ-USA

TQ-USA is a brand of modules distributed in North America by Convergence Promotions