Success Story

ASIX & Digital Core Design

The key to new network solutions

We are glad to integrate DCD IP core into ASIX's Network SoC solutions.
We rely on DCD IP core to make our Network SoC products become more reliable and cost - effective.

Mr. Allan Chou

FAE Director, ASIX Electronics Corp.

THE COMPANIES

Digital Core Design - one of the major Intellectual Property (IP) Core and System-on-Chip (SoC) providers. Since 1999 DCD is working on its reputability, constantly proving to be an expert in IP Cores architecture improvements. The high market position has been confirmed by over 300 licenses sold to over 200 international clients, including: INTEL, SIEMENS, TOYOTA, OSRAM, and ASIX - of course.

ASIX Electronics Corporation - the leading fabless semiconductor supplier, mainly focused on networking, communication and connectivity applications. The company has been established in 1995 and since then, it specializes in network connectivity solutions and provides Ethernet-centric silicon products, such as non-PCI Ethernet controllers, USB-to-LAN controllers and network system-on-a-chip SoC products for embedded networking applications.

CHALENGES

- HAD2 firmware modification for shorter programming time from DoCD^{TM} level

- DoCD^{TM} debug software adjustment & alteration for FLASH support

- Keil uVision 3/4 dedicated driver for direct AX110x & AX220x devices support from IDE uVision environment

IP SOLUTIONS

- DP80390

- DoCD^{TM}

BENEFITS

- Up to 8 MB of linear code space and 16 MB of linear data space, provided by high quality, ultra-fast DP80390 IP core

- Significant chip programing time reduction

- Real-time, non-intrusive debugging software (DoCD^{TM}) with FLASH support

- Shorter chip programming time

OVERVIEW

ASIX Electronics provides innovative, and yet cost effective products. Among four different Ethernet solutions, ASIX offers so called Embedded Network Soc, which is those micro-controllers, that integrate both Ethernet and Wi-Fi Connectivity - the so-called single chip SoC solution. It unites two families of products - AX110xx and AX220xx. The AX110xx family is the world's first high-performance 8-bit microcontroller to deliver the 10/100Mbps Fast Ethernet MAC/PHY, the TCP/IP accelerator and the flash memory in a single chip. All those factors make the AX110xx family a very small form-factor solution to enable embedded system designers to create compact, low-power, high-performance, yet low-cost, embedded and industrial Ethernet applications. The AX220xx family is a single chip micro-controller with TCP/IP and 802.11 WLAN MAC/baseband. Leveraging prevalent Wi-Fi infrastructure in home and office environment, the new single-chip Wi-Fi SoC, AX220xx family, provides cost competitive wireless connectivity solution, for bridging uncompressed digital audio data, compressed digital video data

and serial/parallel user data, through its versatile interfaces, over the Wi-Fi network. This solution makes the devices very compact, and is suitable to be used in large variety of final products, including home appliances, factory/building automation, industrial equipment, security systems, remote control and streaming media applications, such as Wi-Fi speakers and iPhone-controlled toys.

Digital Core Design is proud to be part of that achievement – using the uniqe solutions designed by DCD's profesionalls, considerably helped ASIX to build the microcontollers, that now can be considered as the world's first high performance. What makes DCD's solutions unique?

Lets start from the DP80390 IP Core - its effectiveness considerably outshines other solutions – it contains 8MB linear code and data space, while other IP vendors can offer only 64kB of linear memory. Another key to success was designing the dedicated version of DoCD^{TM} debug software for FLASH support. The DoCD^{TM} provides real-time and non-intrusive debugging abilities, enabling a pre-silicon validation and post-silicon, on chip software debugging. It also allows hardware breakpoints, trace, variables watch and multi C sources debugging. Additionally, the DoCD^{TM} Debug Software can work as a hardware debugger and as a software simulator. Combining the strengths of ASIX and DCD engineers, enabled to create this new, high performance and cost effective solution.