

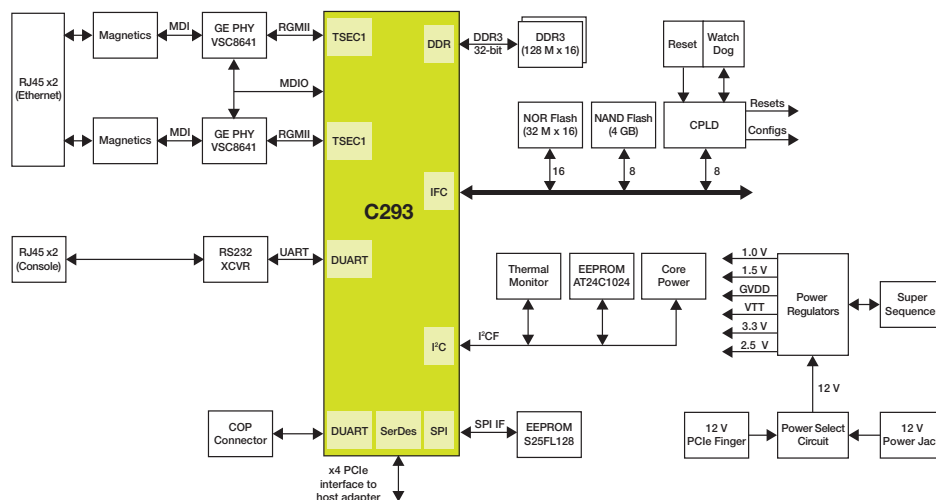
C29x Family of Crypto Coprocessors

C29x PCI Express Adapter Platform

Overview

The C29x PCI Express® (PCIe) Adapter Platform is an ideal hardware and software development platform for high-performance networking applications such as unified threat management, application delivery controllers and hardware security modules. It is based upon Freescale's C29x crypto coprocessor family and is fabricated in a small and efficient half length x4 PCI Express form factor. The C29x PCIe Adapter Platform adds flexibility for developers needing to integrate into a hosted development environment or can serve as a standalone bench-top embedded system. With the integration of dual GbE interfaces and Freescale's Linux® software development kit (SDK), implementing your newest innovations is a snap right out of the box.

C29x PCI Express® Adapter Platform Block Diagram



The C29x PCIe Adapter Platform is designed to help accelerate your time to market. The PCIe Adapter exercises the key capabilities of the device and can be used for software development and performance evaluation prior to your own board being ready. It can also be used as a debug tool to check behaviors on the board compared to behaviors seen on your platform design. Trust architecture technology, first introduced in the Freescale QorIQ communications platform, gives the coprocessor both secure boot and storage capability, ensuring that factory-loaded keys can only be decrypted and used by the coprocessor when it is executing trusted software. Additionally, the C29x family of crypto coprocessors offers breakthrough performance per dollar with scalable power and performance—making it an ideal complement for data center and network security appliances.

The C29x crypto coprocessor family combines the e500 core processor pioneered in the QorIQ P1 and P2 processor families, based on Power Architecture® technology, with our high-performance crypto acceleration logic required for public key operations. The crypto coprocessor family initially consists of three high-performance crypto coprocessors, optimized for public key operations. Public key algorithms such as RSA, Diffie-Hellman and elliptic curve cryptography (ECC) are the basis of digital signature and key exchange protocols that make electronic commerce possible. In addition to public key operations, the coprocessor can also support bulk encryption and hashing, including security header and

trailer for IPsec and SSL. The C29x device can also work as a standalone system or PCIe-based subsystem, booting with its own non-volatile memory, DDR and optional Ethernet interfaces to either the external world or as a connection to the host.

The C29x PCIe Adapter Platform supports a 4x PCI Express interface, two GbE RGMII Ethernet ports, a UART for console display, as well as a JTAG debug interface. These components, integrated with the C29x crypto coprocessor family, provide an application-specific platform that can help you get a jump-start on your next application design. The C29x PCIe Adapter memory system expands 512 MB of DDR3, 64 MB of NOR flash, 4 GB NAND flash and a 16 MB SPI EEPROM.

C29x PCIe Adapter Platform Features

Crypto Coprocessor

- C293 crypto coprocessor built on Power Architecture technology (can be configured as a C291 and C292 processor)
 - 1.2 GHz e500-v2 core

Memory

- 32-bit DDR3/3L memory controller
- 64 MB NOR flash, 16-bit
- 4 GB NAND flash, 8-bit
- 16 MB SPI EEPROM

PCI Express

- PCIe x4 interface

Ethernet

- Two 1 GbE RGMII Ethernet ports

UART

- UART interface up to 115200 bp/s for console display and one RJ45 connector

Others

- RJ45 serial console port
- JTAG for debugging
- CPLD controlling reset, watchdog timer and power-on config
- Connector for ADM1069 (power-on control chipset) programming
- Connector for CPLD programming
- Connector for ZL6105 (digital power) programming