

Fibre Channel Drivers Full Life-cycle Development

Client

Pigeon Point Systems (“PPS”) is a privately held software and hardware development company founded in 1997. It focuses on products and services supporting the adoption of open modular platforms to replace proprietary architectures, with a primary focus on the telecommunications market and PICMG standards. Pigeon Point’s product portfolio includes world-class management components for modular platforms based on the AdvancedTCA® (ATCA), AdvancedMC™, and MicroTCA™ architectures, plus consulting and design services. Pigeon Point participates actively in defining the open modular architectures. An executive member of PICMG, Pigeon Point is a leader in the ATCA, AdvancedMC and MicroTCA subcommittees and is active in many other technical subcommittees. Pigeon Point is also a contributing member of the Service Availability™ Forum and active in its HPI Working Group. The company serves more than 140 customers, including 6 of the top 10 global communications OEMs. The list of its customers is headed by such industry authorities as Motorola Computer Group, Intel Corporation, Force Computers, Microsoft Corporation, Siemens Mobile, Texas Instruments, along with many others. PPS is headquartered among the redwoods in Scotts Valley, California.

In 2008 Pigeon point Systems was acquired by Actel Corporation and became a wholly owned subsidiary of Actel. Earlier this year, Actel and Pigeon Point announced a partnership to develop and market solutions based on the Actel Fusion® mixed-signal FPGAs to speed the design of AdvancedTCA blade and AdvancedMC carrier blade management controllers. By acquiring the leading provider of TCA management components, Actel now offers a comprehensive solution for proprietary and standards-based system management implementations in the industrial, military, telecommunications, and medical markets.

Solution

The goal of the project was to provide a set of LynxOS drivers for the Interphase’s x525 family of Fibre Channel adapters that would enable LynxOS to use IP and SCSI Fibre Channel interfaces. The suite was developed as a part of a bigger project targeted to providing a high-capacity SAN-based storage solution.

The set of drivers was implemented and allowed to control both HBA node and disks attached to the same loop, supporting simultaneous IP and SCSI exchanges.

The set of Fibre Channel drivers was designed to allow for maximum scalability and extensibility. In particular, it is easy to augment the existing software package with additional Fibre Channel interfaces or with low-level drivers that would control new types of Fibre Channel adapters.

The Fibre Channel software package included the following drivers and service utilities:

- **The Fibre Channel Master Driver.** Provides general purpose Fibre Channel support services and interfaces that allow to attach Upper Level Protocol drivers and hardware drivers to the Master component.
- **The Fibre Channel Network Interface.** Maps conventional Ethernet based IP networking on Fibre Channel exchanges.
- **The Fibre Channel SCSI driver.** Maps SCSI transactions issued by the LynxOS kernel to Fibre Channel SCSI exchanges.
- **The Fibre Channel Raw Interface.** Simulates a UDP based network interface but allows for maximum performance since the conventional kernel TCP/IP stack is bypassed.
- **The Interphase’s x526 family Fibre Channel HBA driver.** Allows to control the HBA hardware.
- **Management and configuration utilities.** Allow system administrators to control the Fibre Channel drivers.

Special attention was paid to testing the Fibre Channel drivers. Various test suites were used to verify that Fibre Channel interfaces operate correctly. The software set was accompanied with the necessary internal documentation and the user documentation.

Auriga’s Contribution

Full life-cycle development.

Implementation

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