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# Development of the Linux Redundant Host (RH) for Compact PCI systems

## 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.

## Scope

Development of the Redundant Host (RH) support for Linux. RH support is a level of Compact PCI High Availability system that allows replacement of the hosts’ managing peripheral CompactPCI boards without changing the state of the boards.

## Statistics

- **Team size:** up to 4 people in Auriga
- **Client relationship duration:** 7 years

## Objectives

Full life-cycle development and maintenance of the complex software, including:

- failure recovery
- inter-host communication and synchronization
- switch-over strategies
- Results
- Final version of RH layer has the following features:
  - it has been built on top of the PPS HSK and Intel IPMI management layer—and due to the nature of HA it is deeply integrated with the Linux init and PCI kernel facilities
  - it has a host detection facility and allows switching peripheral boards from Active host to Backup in case of failure
  - it provides RH API, which provides basic functions to control boards switchover behavior and fault tolerance policies



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- it provides limited control on boards and hosts (like reset, power on/off, get healthy status and etc)
- it is able to imitate the presence of peripheral boards on Backup host (fake copy of the boards population from the Active host) and thus it allows to start drivers on this boards simultaneously after any general failover on Active host
- it is integrated into Intel Net Structure SDK
- it is fully tested with Intel Dialogic System Release 6.0 for Linux OS software

## Tools and Technologies

- Red Hat Linux Enterprise Edition, Advanced Server 3.0 Update 4
- PCI, CompactPCI
- Intelligent Platform Management Interface (IPMI).

## Customer's Quote

*"The Auriga engineering teams have been highly competent, effective and disciplined."*

**Mark Overgaard**  
President