

Development of the Windows2000 Host Swap Kit (HSK) for Compact PCI systems

Client

Pigeon Point Systems (“PPS”), is a privately held software and hardware development company, based in United States. 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. PPS provides products and services that enable cost-effective management of standards-based platforms including AdvancedTCA, AdvancedMC (AMC), MicroTCA, CompactTCA and CompactPCI and is a leader in the definition of those platforms. PPS serves such industry leaders as Motorola Embedded Communications Computing, Intel Corporation, Microsoft Corporation, Siemens Mobile, Texas Instruments, along with many others.

Scope

Development of the Host Swap Kit—the software component, that operates mostly in Windows2000 kernel mode and allows inserting and extracting peripheral Compact PCI boards without shutting down the owner host.

Statistics

- Team size: up to 4 people in Auriga
- Client relationship duration: 10 years

Objectives

Full life-cycle development and maintenance of the complex software that allows users:

- to connect and disconnect the boards without rebooting
- to enable application monitoring of board insertions and removal requests
- to set PCI-to-PCI bridge windows for CompactPCI bus segments
- to inform Windows 2000/XP of the physical slot numbering on user’s system
- to configure alternate Hot Swap Control/Status Register (HS_CSR) miniport drivers
- to develop new platform drivers and alternate HS_CSR miniport drivers for any specific hardware

Results

A set of software components represented as device drivers were developed, implemented, verified and validated.

They are the following:

- **The filter driver for the CompactPCI bus**
 - filtering of the input-output request packages (IRPs) for the devices on the bus
 - informs the system about advanced features of these devices (support for dynamic removal and ejection)
 - traces the current status of devices from the perspective of the system and assigns resources specified by the system integrator to the PCI-PCI bridges
- **The Hot Swap System Driver**
 - performs tracing the population of the CompactPCI bus and status of devices on it, by polling the bus periodically or in response to the ENUM# signal
 - provides the interface to application programs, based on the device I/O control (IOCTL) functions and on the standard system mechanism of Plug-And-Play notifications.
- **The platform driver**
 - recognition of the ENUM# signal
 - availability with any supported platform due to conformation to the PICMG 2.x family of standards
- **The alternate HS-CSR drivers**
 - emulation of the standard HS_CSR register on a specific peripheral device with an alternate (non-standard) implementation of the HS-CSR

Customer’s Quote

“The Auriga engineering teams have been highly competent, effective and disciplined.”

Mark Overgaard
President