

## Obsolescence & Life Cycle Management using FPGA!

End of Life for merchant silicon chips or ASIC components is a constant struggle for system and equipment providers, especially when product longevity of 15 years or more is expected, as is the case in Telecom, Healthcare and Utility industries.

When a supplier announces a discontinued availability of a component, their customers are in a hurry to find replacement parts or are forced to do a redesign of their product to ensure supply continuity of their systems.

Often the discontinuation is announced upfront, but there is limited time to react and implement a replacement solution.

AimValley redesigns for component obsolescence on a daily basis and helps customers limit the interrupt time in their product supply.

### Design for Compatibility

Several challenges arise when redesigning a board to replace an End of Life component with an FPGA.

- The FPGA needs to be programmed to replace the old functionality, using the design information of the obsoleted device.
- Circuitry is added to handle multiple supply voltages and I/O signaling differences, such as LVDS or signal levels for external memory devices.

AimValley has extensive experience with high-speed serial interfaces (SerDes) on FPGAs. The SerDes is highly configurable, but it requires expertise to create a signal interface that exactly matches the characteristics of the original device. Especially jitter and wander require attention to detail.

Signal integrity simulation is done to verify hardware compatibility with the existing system, backplane or board. Also power consumption and thermal aspects are taken into account; especially for systems without forced cooling with a fan.

Often design of a new heatsink is part of the solution. We use an automated register map design tool to ensure 100% software compatibility.

## AimValley Expertise

AimValley has been selected by many companies to do redesign of existing board solutions, taking care of obsolescence or discontinued components. Often FPGAs are used as a means to replace and integrate the functionality of one or more ICs into a single device.

This provides many benefits to our customers, such as a prolonged product life-cycle, higher integration which leads to lower product cost and higher reliability, and if requested, a 100% backward compatibility for mechanics, electrical interfaces, and software.

The redesign can also be limited to a single component which has become obsolete. For instance due to a sudden discontinuation in the critical supply chain, e.g. an earthquake or flooding at a manufacturing site.

AimValley creates solutions based on an interposer board, enabling the new solution to be 100% form-fit-function compatible with the current system board. Customers have the benefit of quick turn around times, without the need to redesign a complete board or system and also a reduced effort in regression test. Overall, this solution limits the interruption of product supply.

## AimValley proven track record

AimValley developed a drop-in replacement based on an FPGA on an interposer design, see picture. The interposer is a small Printed Circuit Board that has the same footprint as the replaced ASIC. On the interposer board an FPGA performs the functionality of the replaced ASIC.

Additional circuitry is added to handle multiple supply voltages and IO signaling differences between the ASIC and the interposer design.

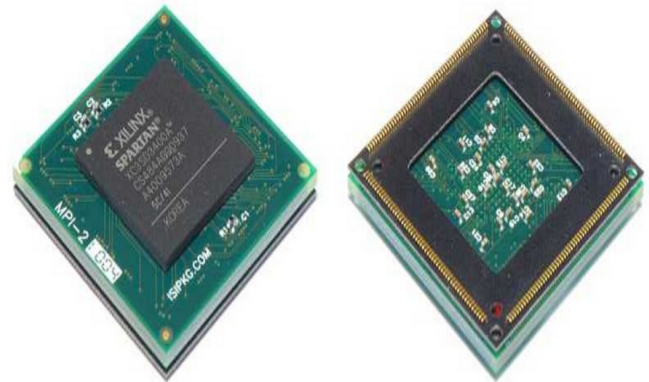


Figure 1: ASIC to FPGA Interposer

More examples on our expertise on our website:

- FPGA Interposer
- ASIC to FPGA

## Why AimValley?

AimValley is a reliable provider of packet switching technology since 2003, delivering solutions for:

- High speed data processing applications
- Complex FPGA-based accelerated systems
- High speed, low power hardware equipment
- Robust embedded software
- Early adopter of Acceleration Technology

AimValley understands the full complexities as well as the subtle nuances of designing great edge solutions. We excel in building complex systems that are part of your product in the fields of Industry 4.0, Big Data, Healthcare and Transportation markets. Our combined skills represent all the important aspects required for the development of end-to-end systems.

Our customers enjoy the benefits of working with a strong team with more than 2 000 years engineering experience. AimValley is a trusted partner of Tier 1 customers in Telecom and Industrial markets and has shipped more than 100 000 products.

## Quality Focus

- Outstanding track record of on-time delivery
- Best in Class Designs – Time, Budget & Quality
- ISO9001, ISO140001, Ecovadis Platinum CSR