



## Optimizing Performance when it comes to High-Speed Electronics

Serving the intended application is clearly the goal but making choices for the best design in consideration of the available integrated circuits is no longer straight forward. Creating the best architecture must consider several factors:

### **Design timelines**

Sometimes a dedicated IC with a specific function can bring a product to market faster but flexibility and options for product differentiation might be lost.

### **Data rates and speeds**

Some product functions need to be ultra-low latency, high-speed in real-time and are best served with an FPGA or accelerator device. Other functions are better served by CPU and software.

### **Cost of the design work**

It seems optimal to use FPGA technology to support most functions, however that can vastly increase the size and cost of the FPGA. In addition, FPGA work is complex and time consuming and requires FPGA experts. If functions can be done in a CPU with software, it can be faster and easier to develop.

### **Power considerations**

The choice between CPU, GPU or FPGA should not only be dictated by performance or latency. The power required, needs to be part of the technology selection.

### **Available PCB space**

A lower cost model may involve many ICs and multiple FPGA chips but the available space dictates the use of a single FPGA that includes the CPU and Memory functions.

### **Performance**

To achieve market leading processing performance, throughput or density, a custom ASIC design is the only solution.

### **Product cost**

The best performance with the ultimate design coupled with the greatest flexibility often means a higher cost of goods.

### **Sustainability**

It is important to consider the longevity of the product and consider if dedicated I.C.s might become End of Life. Product designers need to match long term availability of selected components with the desired product life. At AimValley we prefer a dual sourcing strategy for components whenever possible.

### Why AimValley?

AimValley has almost 2 decades of experience considering all factors regarding the best circuitry design and layout and has an equal amount of experience in embedded software/CPU, FPGA and dedicated ICs. We are a reliable provider of Edge 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

### Joint Development

Achieving your goals requires you to constantly adapt to new technologies. Based on your requirements, we design solutions and ways to jointly implement them.

### Tailor-made Solutions

We collaborate with you to deliver your desired solution (complete product or only part of the development).

### Fast-Track Development

Taking advantage of re-usable designs and IP enables us to develop your solution on a fast track.

### Innovative Solutions

AimValley is continuously looking for alternative and optimized ways of designing high-tech products. We have an extensive patent library.

### Phased Approach

Our design process is structured to successfully take your product from concept to production and flexible enough to allow you to leverage any of our services on a standalone basis.

### Certification

AimValley is experienced in certifying products or systems, such as EMC/ESD, CB and CE.

### Life Cycle Management

We offer life cycle management for the design and/or the product. This includes maintenance and component obsolescence management.

### Quality Focus

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