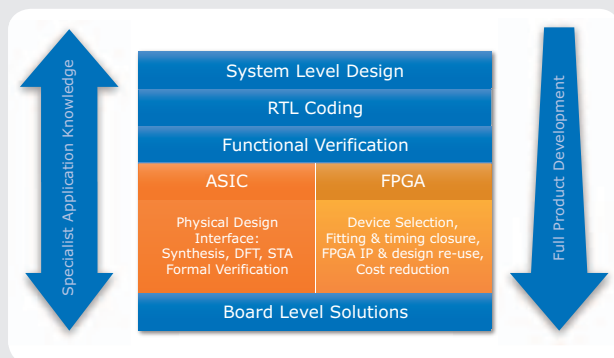


## ASIC and FPGA Design Services

Higher levels of performance, reduced costs and increased differentiation – a custom silicon solution offers genuine competitive advantages.

For companies looking to get new products to market, the use of general-purpose silicon can be a viable solution. A custom silicon solution, however, goes further, delivering a significantly stronger competitive advantage for your business. Based on Application Specific Integrated Circuits (ASIC) or Field Programmable Gate Array (FPGA), custom solutions maximise performance levels, reduce costs and allow real differentiation.



EnSilica specialises in developing custom hardware using either ASIC or FPGA technologies. As we are independent, we are able to select the best technology based on key requirements such as product features, volumes, power and evaluate the trade-offs between FPGA and ASIC throughout the product life-cycle. In many cases a standard part with a FPGA can deliver the necessary differentiation for the initial product, followed by a migration to a lower cost ASIC solution, as the volumes increase.



“EnSilica was recommended by electronics supplier EBV as a local and experienced FPGA design services company with an excellent reputation. We also tendered the work to other suppliers for comparison. We were impressed with the budgetary quote and the team’s overall competence. After completing work on the transmit FPGA signal processing to budget and on time, we engaged EnSilica for the receiver design. This enabled us to replace an Analog Devices floating point DSP, SSRAM and SDRAM with a single low-cost FPGA, leading to a significant cost saving.

The deliverables from EnSilica have always been of the highest quality and the project management has been highly effective. We would recommend EnSilica without hesitation, and look forward to working with them again in the future.”

Lee Richman  
CEO

## Field programmable Gate Array (FPGA)

Field programmable Gate Array (FPGA) devices are now very much mainstream technology, EnSilica have designed FPGA solutions for customers working in markets as diverse as networking, broadcast, automotive, defence and aerospace. The built-in functionality in modern FPGA devices coupled with the FPGA vendor’s or third party IP allows complex

functionality to be included in the device. This can range from embedded processors and DSPs to high-speed interfaces such as PCI Express and Gigabit Ethernet. The high level of integration offered by today's FPGAs increases reliability, provides protection to product cloning and can provide significant differentiation to those products developed with off-the-shelf parts.

## Application Specific Integrated Circuits (ASIC)

The use of ASIC technology will provide the highest performance, lowest unit cost and lowest-power solution for your product – but the production volumes need to be at the appropriate level to offset the NRE associated with the ASIC development. However, by careful selection of the most appropriate ASIC technology, it might well be the most cost-effective solution for volumes below 10,000 units per year.

Even low-cost FPGA can still cost tens to hundreds of dollars per part. Using mature ASIC technologies or structured ASIC the NRE can be reduced to between \$75k to \$250k and unit costs could be as low as \$1 for a full ASIC solution to several dollars for a gate-array solution. EnSilica can provide a foundry independent service to identify the right choice of technology for your product.

## Intellectual Property (IP)

In addition to our design service offering, EnSilica has developed a portfolio of IP cores that can be used within customer designs to deliver a high quality and silicon proven solution in a number of key application areas.

For customers who require an embedded processor solution, EnSilica provide a highly configurable 16/32 bit RISC architecture (eSi-RISC) that scales across a wide range of applications.

To support communications based ASIC designs we have built an enviable OFDM IP portfolio (under the eSi-Comms brand) which is instrumental in providing a platform for

custom and standards-based designs. This IP is highly parameterised and suitable for many of the current air interface standards like WLAN, WiMax, DVB and DAB.

## Board Level Solutions

We deliver boards as either Gerber file format to the selected manufacturer, or through supply chain partners deliver tested prototype or production quantity boards. Our team is skilled in implementing high-speed interfaces using modern signal integrity analysis software. EnSilica can provide expertise required to deliver multilayer board design around FPGA using high-speed interfaces such as DDR2/3, Gigabit Ethernet, RapidIO and PCI Express.



“Navtech’s objective was to develop a new version of a radar system to reduce size, lower cost, and improve reliability by integrating as much functionality as possible into a single device. A standard single-chip solution was not available and Navtech engaged EnSilica as a design partner to produce a custom design. EnSilica performed a study of the project requirements and advised Navtech that implementation in a single FPGA device was possible. Approximately 80% of the design was delivered by EnSilica and the project was completed on time and within budget. The result was a cost saving over the previous solution with significant size reduction and improvement in reliability. We highly recommend EnSilica and will be using them on future projects.”

Phil Avery  
Managing Director

## About EnSilica

EnSilica is an established company with many years’ experience providing high quality front-end IC design services to customers undertaking FPGA and ASIC designs. We have an impressive record of success working across many market segments with particular expertise in multimedia

and communication applications. Our customers range from start-ups to blue-chip companies. EnSilica also offer a portfolio of IP, including a highly configurable 16/32 bit embedded processor called eSi-RISC and the eSi-Comms range of communications IP.

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