

Information Sheet: Profitability of IPC@CHIP® Applications

Nowadays "**time to market**" has more importance than just being a catchphrase. In recent years, the life cycle of electronic products has been considerably reduced. Consumer products often only have a life cycle of 12-18 months, whilst products in the industrial sector have a life cycle of 3 years. After this time, the product is obsolete and can no longer be sold. The product must be redesigned in order to maintain its competitive strength.

The time and costs required for development are nowadays critical factors in the financial success of a new product.

The following factors determine the profitability of a product:

- Development time
- Development costs
- Revenue over the product life cycle

Products with optimised manufacturing costs and long development times are often considerably more unprofitable than products with higher manufacturing costs and short development times.

A short development time is an additional competitive edge since a higher sales price is possible in the first year before competitors subsequently supply similar products.

Conventional solutions

With conventional microcontrollers, the user buys the controller, the software development environment, development boards, and operating system from different suppliers, and carries out the porting and software adaption independently. If any technical interface problems arise between the hardware and the software, the responsibilities are unclear and technical clarification is tedious and very time consuming.

Traditional microcontrollers therefore require long lead times and a high expenditure with typical development times of approx. 15...24 months.

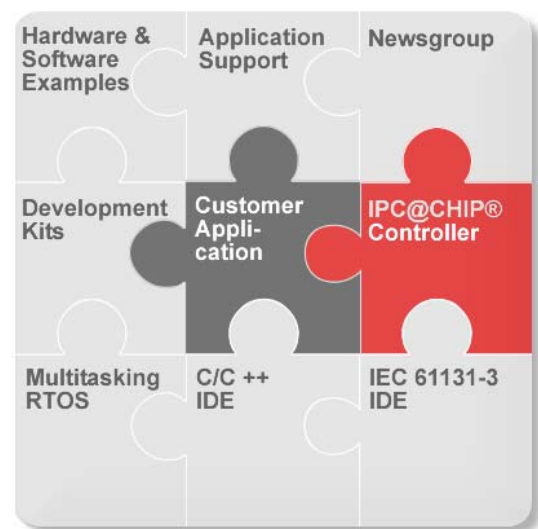
IPC@CHIP® solutions

IPC@CHIP® controllers, on the other hand, ensure considerably shorter development times and lower development costs for the user than conventional microcontrollers. In addition to the IPC@CHIP® controller, the user is provided with an integrated multi-tasking operating system, the complete

software development environment, development boards, HW/SW examples, as well as support and a user forum (Newsgroup).

The average development time for IPC@CHIP® applications is thus only 9-12 months.

The following diagram shows the seamless integration of the individual IPC@CHIP® elements for a complete solution.



Profitability calculation

The profitability of IPC@CHIP® applications can be verified by calculating the amortization and comparing IPC@CHIP® applications with those of conventional microcontrollers.

The amortization calculation determines the time in which the capital invested for a product development can be recovered by revenues. The solution that shows the shortest period of payback is the most advantageous.

The following values for a typical product development are based on the several years of experience we have gained and those of our customers (example: industrial controller with Ethernet interface, web server and digital/analog inputs/outputs).

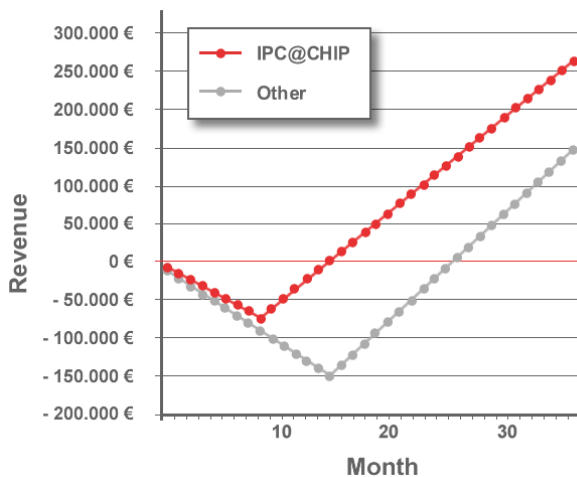
Solution 1 uses an IPC@CHIP® controller to considerably reduce the development time and costs required.

Solution 2 uses a conventional microcontroller, the operating system had to be ported and parts of the software functionality were purchased from third party companies and adapted. The aim here was the optimisation of manufacturing costs.

At first we calculate the profitability for a low volume product (1,000 units per year). The following typical values can be compared directly:

Feature	IPC@CHIP®	Others
Development time	9 months	15 months
Development costs	75,000 €	150,000 €
Manufacturing costs	150 €	130 €
Sales price	300 €	300 €
Annual quantity	1,000	1,000
Product life cycle	3 years	3 years
Break even after market launch	6 months	11 months
Amortization period after project start	15 months	26 months
Total revenue after 36 months	+262,500 €	+147,500 €
Advantage: IPC@CHIP®	+115,000 €	

The graph shows the linear development of revenue in the first three years after development start:



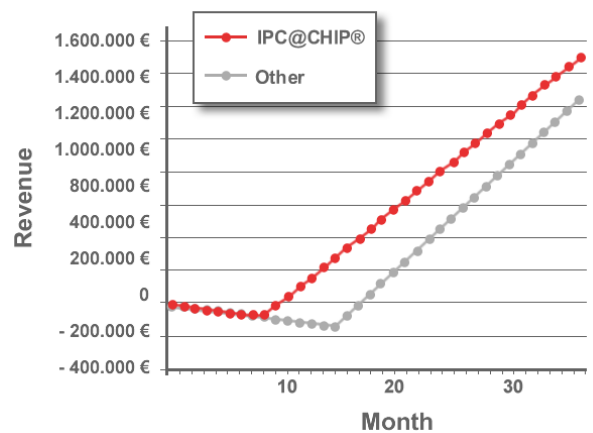
The IPC@CHIP® solution is considerably more profitable. The break-even point is achieved 6 months after market launch, the total revenue is around 263,000 € after three years.

On the other hand, the conventional solution achieves its break-even 11 months after a market launch and achieves in the same period a total revenue of only 148,000 €

When taking the interest costs for development expenses into consideration, the additional revenue achieved by the IPC@CHIP solution is even greater.

The IPC@CHIP® provides also a larger profitability at high volumes (10,000 units per year):

Feature	IPC@CHIP®	Others
Development time	9 months	15 months
Development costs	75,000 €	150,000 €
Manufacturing costs	130 €	120 €
Sales price	200 €	200 €
Annual quantity	10,000	10,000
Product life cycle	3 years	3 years
Total revenue after 36 months	+1,500,000 €	+1,250,000 €
Advantage: IPC@CHIP®	+250,000 €	



The IPC@CHIP® controllers offer you an ideal solution platform for improving the profitability of your products at small quantities but also at high quantities.

Learn more about the IPC@CHIP® product series from our website:

<http://www.beck.ipc.com>