

FACT SHEET



Retargeting Proven Embedded Software

Licensing source code from a 3rd Party means you can save time, money and effort.

Licensing IP in the past has been largely restricted to hardware, normally supplied as a 'Black Box'. The reason for this is predominantly to protect the intellectual property rights of the originator. The problem with that approach is licensees are restricted to what they can do with the IP. Often the licensee has no visibility inside the Black Box, so usability is limited to the Black Box interfaces, with no way of changing what's going on inside.

Even for hard IP this presents problems. What if the function doesn't quite meet the licensee's requirements? What if the licensee is targeting a different process? What if the licensee needs to modify the functionality? Unfortunately for the licensee, these are normally fixed, with no way of gaining access to the underlying HDL to change them.

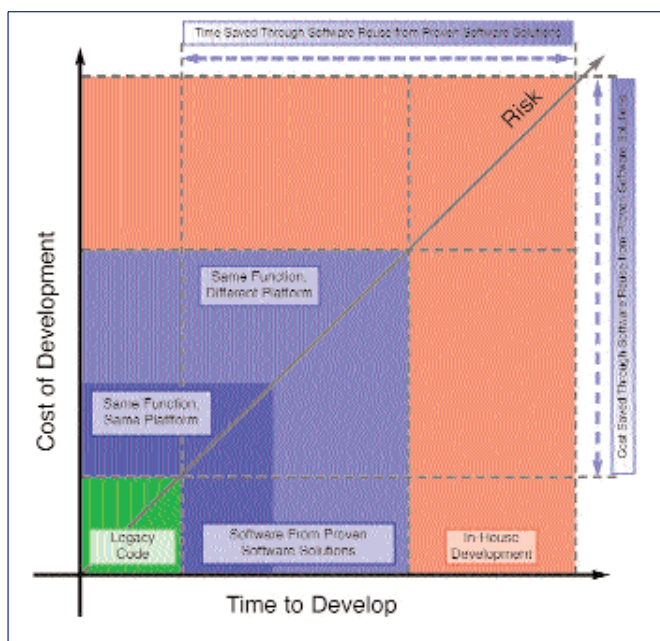


Figure 1: The cost of software development

For embedded software reuse, Proven Software Solutions has taken the approach from day-one that providing just a Black Box with APIs is not the best way to supply software, or the only way of protecting the owner's intellectual property rights.

Proven Software Solutions believes that restricting access to the source code isn't an option when it comes to software reuse; the licensee not only needs to see the code, but the freedom to modify it. That's why Proven Software Solutions supplies your proven, enabling embedded software as source code wherever possible.

The other benefit of supplying access to the source code is that reusing the software is no longer restricted to deploying it on the same platform. Figure 1 illustrates the impact that software reuse can have on the cost and time needed to develop a product.

Obviously the biggest savings can be made if the software is already available in-house, and is in reusable state for the same platform. Legacy code is often redeployed this way and for good reason. It not only extends the lifetime of the code but the product line too. But what if you're developing a totally new product line – with no legacy code?

No legacy code? No problem

The majority of embedded software developed today is what we call *enabling* – things like device drivers, interfaces to external ICs or displays, or communications protocols. Enabling code doesn't add a great deal of value – like differentiating code does – but it needs to be there, simply to make the end product work.

If this enabling code doesn't already exist in-house, the only alternative in the past has been to either source it from a silicon vendor, or have it developed – either in-house or under contract.

Whilst silicon vendors offer a great deal of enabling software for their processor families, they aren't able to support the needs of every customer. That means there's a vast amount of enabling software being developed. The reality is the same function will have been developed countless times by different OEMs, simply because it isn't available commercially.

Between these two extremes of legacy code and developing it, sits Proven Software Solutions.

By sourcing and productising proven, enabling embedded software, we provide an alternative to the costly and risky process of developing it all in-house.

When Proven Software Solutions turns proprietary embedded software into a reusable function, it isn't just the software that's documented, it's the complete platform. That includes the specific processor in the host application – not just the processor family – as well as the operating system (including version) and the IDE used, right down to the compiler optimisations used to build the host application.

Because the software is extracted from a real product it has a proven status, which we also document. It also means the memory resources needed by the software are also known and these, too, are documented. That means the licensee knows the complete environment the software is proven on, giving the licensee complete confidence in its functionality.

Portable source code

If you're targeting the same platform for your next project, you can select the software functions that are proven on that platform, significantly reducing your development cost, time and effort. This is the next best thing to already having the software in-house, because you're assured that the software will integrate with minimum effort.

However, if you're targeting a different platform, or your target processor is yet to be specified, you can still make significant savings by licensing proven, enabling embedded software from Proven Software Solutions. True, the effort required to port the function to your platform will be greater, but this is made possible and simpler by supplying the function as source code.

If, for instance, you're targeting a different member of the same family of processors, or even a completely different family and bus structure, the availability of the source code, plus the full documentation – including performance metrics – means your engineering effort is still significantly reduced over developing it in-house.

For a start, your engineers aren't required to spend valuable time familiarising themselves with the function in order to use it. This can save untold man-hours at the R&D stage. Implementing an unfamiliar communications protocol, for example, would require the software engineering team to fully understand the protocol before they go near a keyboard. It then has to be fully coded and tested thoroughly before integration can begin. By licensing a proven implementation of that protocol, as source code, you can by-pass that costly R&D stage and begin integration almost immediately.

Wanted: enabling software

Finally, if we don't already hold the function you're looking for, use our free Wanted service. If we can locate it you can still benefit from software reuse.

For the first time, there is a practical alternative to developing all your enabling embedded software in-house. Licensing proven, enabling embedded software from Proven Software Solutions will not only save you time, money and risk at the R&D stage of your next project, but it will also free up your engineers to focus more on the differentiating features, meaning you can get your next product to market quicker, cheaper and with a higher specification.

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