



Deploying function to hardware – a flexible new approach

Summary

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In the traditional approach to design a custom hardware platform is first determined and locked down, then the 'soft' elements added to define the product's function. The limitations of that fixed hardware platform will restrict the options of the soft intelligence developed on it, and therefore value of the final product.

Bringing that product to market is a protracted and complex process, starting with prototype hardware design – which must be determined at the beginning of the design cycle – then the programmable soft elements that exist on that platform, then after extensive development and testing work, the production hardware can be finalized and manufactured.

The Altium Innovation Station has turned that methodology completely on its head by letting you focus first and foremost on the crucial soft elements of your design, then determine and refine the hardware requirements as you go – or even after the product is in your customer's hands. The hardware possibilities become open-ended, you're free to develop the soft elements to define the best possible product, and the initial development hardware is no longer locked to the final product.

The Innovation Station makes this possible by combining Altium Designer with the Altium NanoBoards to create a single, unified design environment that allows you to design and deploy your product in the most effective way for your needs. Along with delivering a whole new approach to electronics design – you can find out more about the Altium Innovation Station here – the Innovation Station delivers a range of ways to implement and deploy your design, thanks to the Desktop NanoBoard and the developing range of application-targeted Deployment NanoBoards.

In practice, this means a design developed on a Desktop NanoBoard can be deployed on a complete custom board design, ported to a Deployment NanoBoard, or even exist as pure 'device intelligence' with no fixed hardware. The physical form your design takes in your customers' hands is now open-ended and can be determined by current needs, and even freely at a later date.

Model 1 – No hardware

The design intelligence – the essence of your design – exists on the Desktop NanoBoard as a functional, useable product. In this case the design might ultimately be deployed by moving to any of the other hardware solution models below.

Situation:

- * The functional design exists as proof of concept prior to full marketing commitment
- * Customer needs dictate that the physical hardware platform is yet to be determined

Hardware:

- * The design has been developed and is functional on the Desktop NanoBoard
- * No custom hardware is developed

Innovation Station features:

- * The design is stored as a single unified model that is portable and reusable.

Model 2 – Altium Deployment NanoBoard

The design is implemented on an application-targeted Deployment NanoBoard

Situation:

- * The marketing strategy and production volumes suits off-the-shelf hardware.
- * The application can be realized using the Deployment NanoBoard & plug-in boards

Hardware:

- * A Deployment NanoBoard, such as the Handheld Industrial NanoBoard
- * NanoBoard plug-in hardware modules, as used in Desktop NanoBoard
- * No custom hardware is developed

Innovation Station features:

- * The design ports directly from development to production hardware.
- * The product's programmable hardware and software can be updated at any time

Model 3 – NanoBoard hardware integrated into an existing physical product

The assembled NanoBoard hardware modules are brought into a larger physical product design

Situation:

- * The developed design needs to be physically integrated into an overall product
- * The design need can be realized using off-the-shelf NanoBoard hardware

Hardware:

- * NanoBoard modules: NanoBoard 'motherboard', Daughter Board and Peripheral Boards
- * No custom hardware is developed

Innovation Station features:

- * 3D modeling for mechanical integration

Model 4 – Customized Deployment NanoBoard

A Deployment NanoBoard is used, but with custom-designed peripheral boards

Situation:

- * Custom peripheral electronics is needed for the application

Hardware:

- * A Deployment NanoBoard, such as the Handheld Industrial NanoBoard
- * Custom-designed NanoBoard peripheral boards

Innovation Station features:

- * Boards are designed using supplied peripheral board templates
- * Boards can be developed and tested on the Desktop NanoBoard.

Model 5 – Custom-built NanoBoard

The NanoBoard circuitry and firmware is incorporated in a custom board design

Situation:

- * A different physical form factor is required for the NanoBoard hardware
- * Custom hardware needs to be merged with the existing NanoBoard design

Hardware:

- * Custom-built board incorporating NanoBoard technology and hardware

Innovation Station features:

- * Design reuse and retargeting facilities
- * NanoBoard circuitry and NanoTalk firmware is available

Model 6 – Full custom hardware design

This is the traditional approach where a design is created from scratch on custom-built PCB.

Situation:

- * A NanoBoard-based design is re-factored into a minimal hardware solution
- * Or no NanoBoard technology is used

Hardware:

- * A custom built PCB hosting custom designed hardware

Innovation Station features:

- * The unified design model means designs at other levels can move to this level

This unique approach to hardware deployment provides solutions across the complete design continuum – from custom board to custom device intelligence. The Innovation Station lets you design without limits, from pure device intelligence, with no electronics hardware design required, all the way through to full, custom electronics hardware. Ultimately, you choose the implementation option that best suits your application, target market and current technical and business needs.

Find out more about the Altium Innovation Station

Find out more about the Altium Desktop NanoBoard

Find out more about the Altium Deployment NanoBoard range