

Make production your partner

Choosing and working with a manufacturing partner is now part of an engineer's job description. **Tim Fryer** talked to three EMS providers about how to make this a successful relationship.

When engineers sign up, they probably don't expect to get involved in working with – and in many cases selecting – their EMS partners. But that has become the reality for successful and efficient product development. However, EMS companies come in all shapes and sizes – their merits relate to the nature of the product being made and the companies they are making them for. In this article, three EMS companies give their opinion on the best way to interact: Flextronics is a Tier 1 global EMS provider; Stadium Group offers a 'best fit' UK and Asia manufacturing model; while Custom Interconnect is a mid size British EMS provider, specialising in safety critical and high reliability electronics.

NE Is manufacturing a commodity that should be outsourced and handled by the purchasing team?

John Moylan, process engineering manager, Flextronics Cork



Nevertheless, it is an ideal candidate for outsourcing: the question is not who does it, but who does it best.

Manufacturing processes and execution contribute significantly to product quality and with it to both revenue and reputation.

Outsourced manufacturing is by now a well established activity, with many, many OEMs accepting that manufacturing is best left to specialists. Purchasing does have a role to play in managing an outsourced manufacturing partner, though cost is not the only driver to focus on in managing the relationship with outsourced manufacturing partners. The relationship will deliver greatest value when any function which has a relationship with in house manufacturing is also part of the team working with the outsourced partner."

Tony Inskip, commercial director, Stadium Electronics:



cost and value is clearly a critical factor, the EMS partner decision requires a far more complex approach and should involve the design and engineering teams, ideally at the product development stage.

"The in house support and expertise of the EMS provider should always be considered. Experienced and well resourced engineering teams in disciplines such as electronic, mechanical and software design, and product development can be a great asset to the internal design teams of any OEM. Considering that more than

70% of the costs associated with a product are determined early in the design and development, specific expertise in Design for Manufacture and Test can greatly reduce time to market and ensure high production yields.

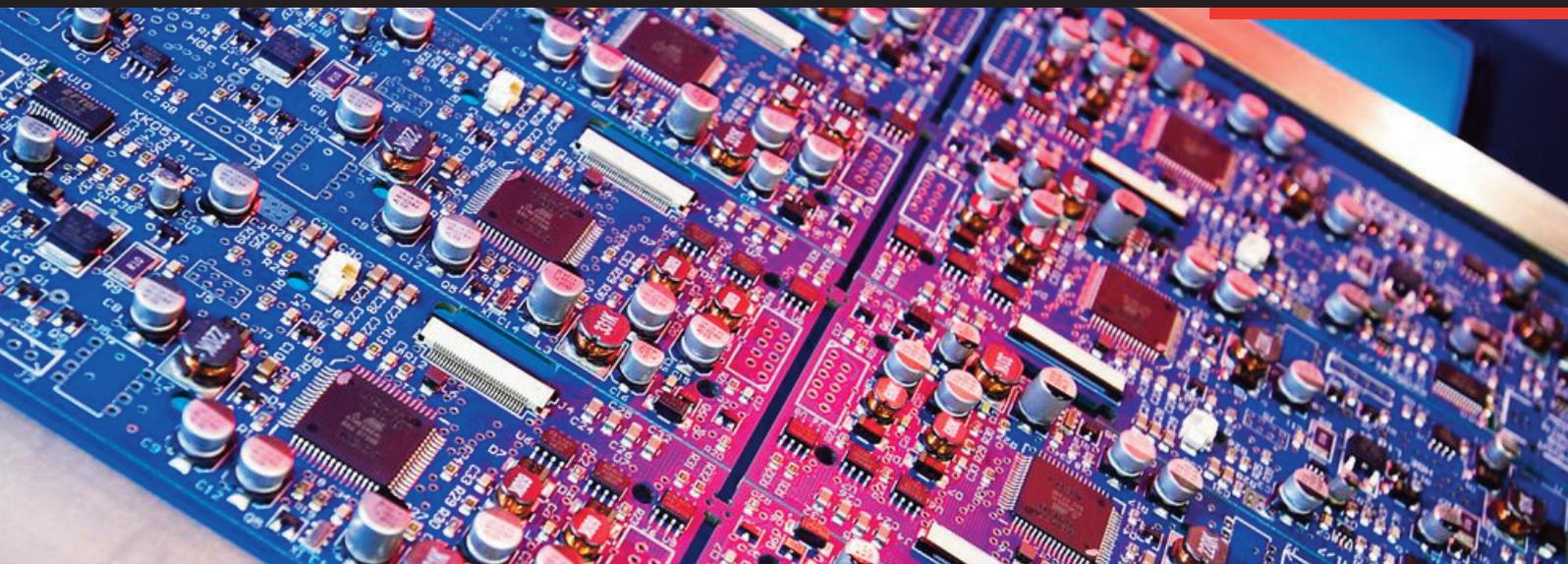
"Who knows better than the EMS provider how to manufacture any product? Early engagement with the EMS partner's in house design team can optimise the pcb layout, reduce pcb design iterations, remove hard to source or potentially near end of life components and take advantage of economies of scale with other on going builds."

John Boston, managing director, Custom Interconnect:



unsurprising that we have seen an upturn in the number of contracts having a primary objective based on price, rather than more critical issues such as technical capability and quality.

"While this is an understandable change, given market conditions, I believe a lack of true engagement between the OEM and the EMS company at all levels is concerning – not least of all because the selection of the wrong EMS company can be



The key to getting it right? Good communication at every stage.

Picture courtesy of Stadium Electronics

detrimental to the end product, leading to product failures, recalls, high levels of repairs and damage to brand.”

NE How much involvement should the design engineer have in choosing the EMS partner and what should be their role in the relationship?

Moylan: The relationship is critical in many ways: it’s integral in minimising the product development cycle and enabling the earliest possible new product entry into the market. It’s also critical to ensure designs are optimised from a manufacturing point of view (including the number of components and product assembly time) in order to minimise manufacturing cost and boost field reliability. The relationship can work in both directions: the outsourced partner can introduce designers to new technologies or manufacturing techniques that enable advancements in design.”

Inskip: “The relationship should be built on a manufacturing partnership and an extension of your business, rather than cost alone. An engineer to engineer relationship throughout the product life cycle, including cooperation throughout product development, will ensure the best use is made of new technology, while providing access to advanced manufacturing technology and production methods which can improve quality or enhance features and lead to cost reductions.”

Boston: Designers are fundamental to choosing the right manufacturer, especially when it concerns complex electronics. The right EMS provider can use its production engineering capability to identify design issues and recommend efficiencies from the start of the process, helping to minimise cost implications. EMS companies are, in effect, production engineers and when design expertise is coupled effectively with production expertise, you get it right.

With design engineers in short supply, workloads are heavy and, increasingly, this level of relationship is becoming difficult. We understand the real key to product quality is coupling good design with high quality manufacturing techniques.”

NE What are the reasons for and benefits of particular manufacturing models?

Moylan: Models vary, but the principle applied in selecting the right one is always the same: choose the one which delivers best against the priority at that stage in the product life cycle. For example, at the New Product Introduction stage, ‘speed’ is usually the focus, because time to market is the highest priority. In the mature stage, ‘cost minimisation’ becomes the top priority, since, after sales volume, cost influences profit more than anything. Manufacturing alone will not deliver the maximum benefit at any of these stages. Manufacturing is just one link in the supply chain and the most effective way to deliver total

operations benefits is to control the entire supply chain as closely as possible. This is becoming recognised increasingly as the major benefit EMS companies can provide.

Inskip: The typical manufacturing location model has been low volume/high mix in the UK and high volume/low mix offshore. However, the market dynamic has changed and the ability to forecast demand levels is now more difficult. Today, a more flexible onshore/offshore mix model is more attractive to the OEM, who can effectively switch on the offshore EMS provider when demand increases, and back to the UK EMS provider if demand reduces or when the product reaches maturity.

Another trend is ‘regionalisation’. OEMs developing eco or green products want them to be made close to their destination market to reduce the carbon footprint.

Boston: While there has been some talk of reshoring, we are not seeing this on a large scale. Nevertheless, a low level of important strategic business is returning, mostly when: product volumes have reduced or not met original forecasts; total cost of UK supply is lower, with critical social/manufacturing and freight costs being subject to unsustainable inflationary pressures from parts of Europe and Asia; increased supply chain flexibility is needed as demand cycles shorten; and when increased importance/value is attached to IP protection by OEMs.

The conclusion?
It’s all about communication. Selecting your partner as early as possible and making sure designers and manufacturers talk to each other should bring products to market successfully.