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RF PRODUCTS | SERVICES | SOLUTIONS

TECH BRIEF

How RF and Microwave Companies Can be Empowered by US-based Contract Manufacturing

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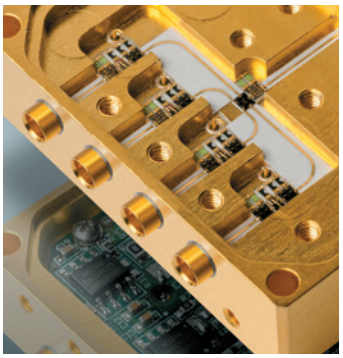
From prototyping to production there are many ways to gain profitability and time by engaging an expert RF assembly outsource.



The nuances of RF/microwave design leave little room for shaving costs and delivery times. Shortening the design, development and manufacturing cycle can be especially challenging when several production schedules need to be balanced on the production floor at once, and overseas manufacturing is prohibitive. That's why many companies are establishing key relationships with expert US-based contract manufacturers and sources of supply. Full service local outsources are not only offering cost-effective delivery of quality products, they're freeing up internal teams to stay focused on the customer issues that matter most.

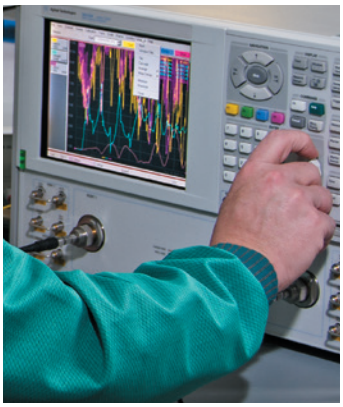
"According to a 2015 forecast by industry analyst ReportLinker, the electronics contract manufacturing industry is expected to grow to $845.8 billion by 2021 with a five-year compound annual growth rate of 8.6% from 2016-2021."

AUDIT YOUR NON-ESSENTIAL TASKS

The design and development process is optimized when an OEM can leverage its talent towards their respective specialties. Unfortunately, all too often design engineers double as test engineers and assembly technicians, stealing valuable time and resources from focusing on more profitable tasks. The goal at every corporate level is to remove all non-essential tasks in the workforce and streamline the time to market for products and services. This line of reasoning often raises questions such as to 'make or buy' and to 'repair or replace' in a company.

Establishing a relationship with a qualified RF/microwave contract manufacturer provides a management team the opportunity to step back and evaluate what their internal production lines need to do best, and with routine. By outsourcing lower volume and perhaps more unique assembly work on an as needed basis, OEMs avoid idle hands and idle machines. A well thought out outsourcing plan also reduces equipment and training costs, and allows OEMs to gain momentum in research and development as a result of freeing up engineering talent to look ahead.

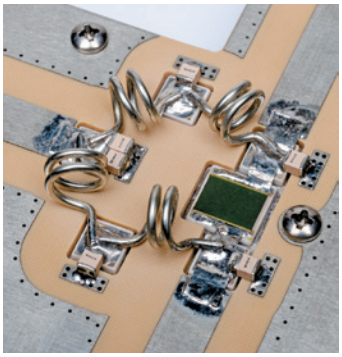
THOROUGHLY EVALUATE THEIR TESTING CAPABILITIES



Military and aerospace programs require standardized testing in accordance to various military specifications for quality assurance. This means that all parts need to be screened before integration. This often includes upscreening and specialized application-based tests. While competent in the assembly area, this component-level minutia can oftentimes be the Achilles heel of a busy production team or an inexperienced outsource. A robust engineering and production test lab is also an expensive department to install and maintain. Equipment, such as vector network analyzers (VNA) for s-parameter analysis, spectrum analyzers for noise figure and IP3, power meters for P1dB, and RF test chambers, must operate as a well-tuned machine in order to deliver the promised fidelity of measurement from their manufacturers. Additionally, a test department typically requires a wide variety of tests, test set-ups, lab equipment, and lab space. For example, a high frequency space application that includes an assembly operating at Ka-band would require the test bench and its respective set of connectors and adapters to operate at that frequency as well.

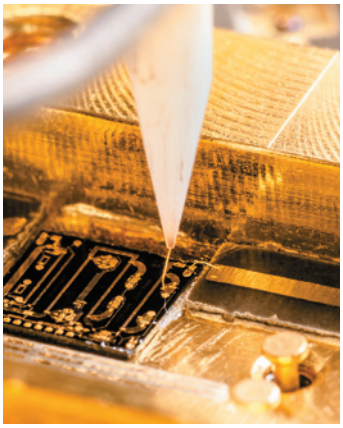
An outsource that is committed to high frequency assembly and test will be able to convincingly demonstrate the breadth of bands they can test to and the caliber of their testing capabilities. When they're as good or better than your own internal team's testing capability, they're obviously a much more useful asset in helping you reach your delivery goals.

CONSIDER THE ASSEMBLY HELP YOU'LL NEED TODAY AND TOMORROW



The assembly process is a major undertaking in the production of RF modules with a variety of methods and means to generate components including hand soldering, eutectic attachment, ribbon bonding, coil winding, and surface mounting. Ultimately, manufacturing RF, microwave, and millimeter-wave circuits and assemblies often requires full-time allocated staff with expertise in precision assembly, along with a slew of precision assembly equipment. Hence, key OEMs find themselves more agile in the market when they can offload their various hand assembly work with confidence. But it's important to remember how often a build includes sophisticated printed circuit board assemblies as well. You can search online for a host of low cost PCB manufacturers, but will they know how to handle your high mix, fine pitch, or VGA needs? Can they manage your odd shaped boards and test and install them turnkey? Can they help you put together a process development procedure? As you consider your next outsource, it's important to look ahead at your total potential needs. Odds are you're going to need your outsource in a pinch.

AVOIDING THE PITFALL OF A "REPAIR OR REPLACE" DECISION.



More often than not, OEMs will replace RF products and components to avoid the hassles of shifting talent around, as well as the logistics that come with the upkeep of delicate RF equipment. This decision may not be the ideal option, as repairs are often more cost effective. Moreover, the repair process can also generate a feedback useful in analyzing application-based failures, and thereby improve production processes and best practices.

Redirecting the repair functionality in the organization to a trusted partner, and treating repair as a separate entity and vital function, can have considerable benefits when breakdowns and failures occur. Having an efficient and proven effective relationship with a repair service will help to ensure critical equipment has a high percentage of uptime.

Part obsolescence is also common reality in this technology market. However, replacements aren't always necessary, as retrofitting and proven after-market modifications or accessories might prevent whole test system replacements due to a lack of inter-equipment back compatibility. For military/defense and aerospace contractors and organizations, maintaining legacy hardware and components is often unavoidable and regular service is a must. Contract manufacturers with repair service capabilities could provide a one-stop-shop as well as a beneficial relationship that removes the added burden of shopping around the market and navigating lengthy negotiations.

PLAN AHEAD BY GETTING YOUR OUTSOURCE ON YOUR AVL EARLY

Keeping and maintaining an approved vendor list (AVL) is a necessary procedure for OEMs. Vetting sources of supply for parts and services provides stability and quality assurance within their processes. But getting a vendor on an AVL can take time. That's why it's important to identify your outsources before you need them and to find even the smallest way to get into a contractual agreement that will set the AVL process in motion and have it completed by the time the more critical work comes up. Do they sell components or bonding tools you can use for instance? While SemiGen is a go-to source of these components for many customers' routine bill of material (BOM) needs, we also find they're just the thing to set a vendor approval process in motion well ahead of when the critical assembly work comes into play.

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Assembly services, diodes, and purchase bonding supplies
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Sources:
globalpurchasing.com
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