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COMS 2010



About MEMStaff

- ◆ **MEMStaff is a recruiting agency specializing in recruiting and placement of MEMS professionals**
- ◆ **Founded in 2006 by MEMS engineers**
- ◆ **Employees have direct experience bringing MEMS products to market in high volume**
- ◆ **Combine engineering experience with experienced recruiters to give best of both worlds**
- ◆ **Two Ph.D.s in MEMS**
- ◆ **Recruiters with decades of recruiting experience**
- ◆ **Offices in Boston and Silicon Valley**
- ◆ **Work with most MEMS companies and have placed numerous employees throughout the MEMS industry**
- ◆ **Have expanded into general semiconductor, solar, and green areas**

Introduction

- ◆ **People are the most important part of the equation in bringing a MEMS product to market**
- ◆ **MEMS is still immature compared to the general semiconductor industry**
 - Experienced talent is not as widely available
 - Vendor network is not as mature
 - Still a lack of standardization (processes, packages, etc.)
- ◆ **As the field matures, market windows and investment windows continue to shrink so those who take too long will fail**

What Do I Mean By MEMS?

- ◆ **Most of us know what MEMS devices are**
- ◆ **However, when it comes to skills that PEOPLE have, this isn't always clear**
- ◆ **When I talk about MEMS skills, I am talking about specific skills that are unique to MEMS and not as easily found in the general semiconductor industry. These can include:**
 - **Design Skills (FEA, coupled domain modeling, optical, structural/fluidic/thermal, electrical, working with lack of advanced tools)**
 - **Process Skills (Release processes, wafer bonding, deep etching, thick deposition)**
 - **Packaging Skills (Stress, ports open to harsh environment, moving parts, die attach, etc.)**
 - **Marketing/Sales/Product Support (Customers expect semiconductor reliability, quality, support which may not be matched in immature MEMS products)**

MEMS is Different from the General Semiconductor Industry

- ◆ **Less Mature**
 - **Less infrastructure**
 - ◆ Lack of standard processes
 - ◆ Many vendors lack high volume MEMS experience and thus are slow to solve problems they haven't seen before
 - Much of the “secret sauce” still lies at IDMs, although this is rapidly shifting
 - ◆ Foundries have improved greatly but still lower chance of first silicon success than general semiconductor industry
- ◆ **Fewer experienced engineers**
 - **Universities are graduating many engineers with good MEMS fundamentals**
 - **However, there is still a lack of availability of MEMS engineers with volume MEMS success**
 - ◆ These people are in high demand as they can have significant impact on the success or failure of a MEMS effort
- ◆ **A good semiconductor engineer can observe a problem and find a solution, but an experienced MEMS engineer, knows some of the problems that might be encountered and can avoid them altogether**

Do You Need Someone Experienced?

- ◆ **New MEMS graduates can have strong fundamentals and often want to prove themselves**
 - With guidance from someone with product experience, can be extremely productive
- ◆ **Experienced Semiconductor Professionals often have high volume experience, experience working with vendors and large teams, operational experience**
 - Must be careful not to underestimate the challenges and differences of MEMS
- ◆ **Experienced MEMS professionals have experience with specific problems encountered in MEMS and can identify potential problems in advance and avoid them completely**
 - These people are in high demand and many are moving into leadership roles, so it can be difficult to find people who will still “get their hands dirty”
- ◆ **COMBINATION OF ALL THREE IS IDEAL**

There are Experienced MEMS People and Organizations Out There!

Company	Number of MEMS Devices Shipped	Estimated number of people employed working on MEMS devices
Analog Devices	>500 Million	>200
Bosch	>500 Million	N/A
Freescale	>1 Billion	>250
Knowles	>1 Billion	5
ST Microelectronics	>750 Million	>800
Texas Instruments	>20 Million Chip Sets	>100

>3.75 Billion MEMS Devices Shipped
Thousands of experienced MEMS engineers



Acquisition of MEMS Talent

◆ Networking/direct referral

- Low risk
- High probability of success

◆ Advertising

- High risk
- Low probability of success

◆ Agency

- Medium Risk
- Should cast widest net to cover all above methods

Contingency vs. Retained

- ◆ **For many positions, recruiters will work on contingency which means you only pay them if you hire someone they send**
 - This gives a company free labor and is a great way to supplement a search with very low risk
- ◆ **For some positions recruiters will ask for a retainer**
 - Typically for senior or executive level position
 - Can also be applied if the recruiter thinks that the position has low odds of being filled
 - ◆ ie. The client is asking for someone who doesn't exist
 - ◆ Or the client is asking for someone who does exist, but the opportunity is not appealing enough for such a person (salary, location, position, etc.)
 - ◆ Most people would not agree to work for free, so why expect your recruiter to?
 - ◆ Typically, the retainer is applied to the placement fee, so in the end, it does not cost the client any more, and thus reduces risk to both parties
 - If the job does not get filled, the recruiter still gets some compensation for their time
 - If the client hires for the position, it doesn't cost them any more, and if they don't think the recruiter will be successful, then why hire them in the first place?

How to Work With Recruiters

- ◆ **Find a recruiter who specializes in your field or who has experience that helps them understand what you are looking for**
- ◆ **The barrier for entry to be a recruiter is low, you can find plenty of recruiters that work for low fees and then disappoint. You get what you pay for.**
- ◆ **Take the time to work with your recruiter closely. Give them detailed feedback on resumes they send. A small amount of time spent will save you time later**
- ◆ **Be open with your recruiters. If you find candidates yourself, let your recruiter know. It will help set their bar and make them work harder to find someone better**
- ◆ **Many recruiters will work on contingency, so it should never hurt you. It should always help you cast a wider net and hopefully get candidates you never would have gotten otherwise.**



THANK YOU!

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