

# **Tensilica Technologies India: An update**

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## **Abstract**

This paper describes the progress made in establishing and running the India operations of Tensilica, Inc. Tensilica is a private, venture funded startup providing microprocessor Intellectual Property for System-on-Chip markets.

Tensilica Inc continues to do very well in providing high-value products to the embedded systems market. It's Xtensa configurable and extensible processors and newly introduced Diamond pre-configured processor cores are finding use in printers, mobile phones, digital cameras, audio and video applications, routers, modems and a host of other applications. The business and volume of products shipping with Tensilica cores is expanding at a rapid pace.

At the "Globalizing of Services" conference in June 2005, we had discussed the beginning of our offshoring attempt. We had begun by partnering with an Indian design services company to establish an Offshore Development Center, under the Build-Operate-Transfer model. This paper describes the steps taken since then to transfer to our own subsidiary, Tensilica Technologies India located in Pune.

The paper addresses the key reasons to establish our own subsidiary, the important steps needed to turn that into reality, the advantages we have seen and the challenges that we face today.

## 1. Introduction

Tensilica, Inc, a venture funded startup based in Santa Clara, CA began its India operations in partnership with eInfochips Pvt Ltd of Ahmedabad, India. This partnership began in Nov 2004 when we started an offshore design center based in Pune. The design center was setup under a Build-Operate-Transfer model, and our experience with offshoring was described in this conference in June 2005. In Jan 2006 we established our subsidiary.

This paper describes the reasons to transfer and the challenges and opportunities that the transfer now provides us.

## 2. Recap of situation before transfer

To set the context of this paper it might be useful to recap some of the main points from the paper of the 2005 conference.

Our philosophy on choosing work to be done in India was:

1. Only R&D work to be offshored initially (i.e. no customer support, IT services etc.).
2. Do *additional* work there, i.e. supplement the work done in Santa Clara, not replace it.
3. Do test and QA, but also development, in India.
4. Fundamental innovations will continue in the US. We see this as imperative due to tight coupling with other functions within the company and the unique skills in the existing team.

The challenges we had faced in the first seven months of operation consisted of:

1. **Building the Team:** Recruiting in the high-demand, low-supply market of India was very hard. The BOT model and Tensilica's lack of a name-brand in the Indian market were even greater obstacles.
2. **Management and startup effort:** The large effort that is required to get an operation 12 hours away is very demanding, and often frustrating.
3. **Build-Operate-Transfer Model:** The main challenge pointed out on this point was the lack of success in quick startup. We had not, at that time, been able to get

contribution and productivity at the pace we had expected. The smoothness of transfer was also unknown.

4. **Effect on the US Team:** There was apprehension about how this new initiative would work out on the part of the US team. They were unsure about the real productivity and savings from the operation and also about the impact of this initiative on the career growth potential for our U.S. team.

### **3. Decision to transfer**

Around mid-2005, our Design Center in Pune had 5 employees. They were all working on the development and test of the Integrated Development Environment (IDE) for our embedded microprocessor technology. We were finding it impossible to hire senior engineers and managers. Without senior, well-experienced engineers there it was very difficult to manage the team from the US and achieve good productivity.

One of the clear reasons for this inability to hire senior employees was the fact that we were in a BOT model. The more experienced persons in the Indian labor market were far more interested in working directly for a US company or a product company. They were not interested in working for an operation that was, in effect, a services company. We interviewed several folks, but they invariably ended ended an acknowledgment on their part that the work and the technology that Tensilica was offering was great and very interesting, but they preferred to wait until we had our own subsidiary.

The BOT model had successfully enabled us to get going at low cost and provided us good experience working and recruiting in India. This experience gave our management team confidence to continue our efforts in India with an even greater commitment. With this as background, we decided to first hire our Managing Director and then work through him to separate from our Indian partner.

Our Managing Director, a Pune native, came with a background in embedded systems with over 25 years of work experience in various service and product companies in the electronics and software field in India. He was also a key member of a couple of startup companies and has vast knowledge and contacts in the field in India. We recruited him

with help from an executive search firm located in the Silicon Valley specializing in recruiting high-level executives in India.

Once our MD was hired, he confirmed and in fact accelerated the separation.

Due to the relationship we had built with our partner, the clear evidence we could show about the recruiting process and the fact that we had always had open and good communication with them it was not difficult to separate. We established our subsidiary, Tensilica Technologies India Private Limited (TTI), on Nov 9<sup>th</sup>, 2005 and moved into our own premises on Jan 1<sup>st</sup> 2006.

The legal process to setup a subsidiary and to officially separate was not particularly hard or onerous. The hardest part was finding suitable office space in Pune that fit our budget. We were very surprised to learn that the space cost more than in the Silicon Valley and had a huge deposit (10 months of rent!).

#### **4. Accomplishments and Challenges continue**

We started 2006 with 7 employees and will end with 16 employees and 2 consultants.

The scope of work has expanded from just IDE development to DSP codec development and verification of our instruction extension (TIE) compiler. We have hired several very senior technical experts and managers. Some of these senior hires have advanced degrees from excellent US or Indian universities and substantial experience working in the US. The depth of work, productivity, quality and direct contribution to Tensilica's business success have all increased substantially in the past year. For example, the DSP team in TTI has added to our ability to deliver a larger number and more complex audio codecs to our customers. They have also become the primary contact with our other DSP partners, receiving, accepting, and enhancing their deliverables. We have also substantially increased our capacity to do TIE compiler verification and several enhancements and bug fixes have been made in the IDE to make it more usable and robust. This work by TTI

has been released to customers and is helping make our product offerings richer, more usable and more robust.

To improve the understanding of each other's culture, work habits and better teamwork, we have organized many trips between Silicon Valley and India. These have used time and employee bandwidth. Despite these efforts not everything has gone exactly as planned.

Let us address each of the 4 points that were mentioned earlier as challenges in 2005 and compare them with where we are today:

1. **Building the Team:** As mentioned above, we have clearly succeeded in attracting, hiring and retaining several technical managers, senior and junior engineers. But the ramp has been very slow and painful. We have not achieved our goal of growing to 25 employees by year-end. The sourcing of qualified candidates continues to be difficult. There is a dearth of well-qualified engineers in India and the competition for them is intense. That combined with our insistence on quality over quantity, a somewhat unknown brand (though visibility continues to improve) and location (Pune versus Bangalore, which is the center of IC design industry in India. The choice of Pune is serving us very well in terms of retention and stability), our success rate in bringing on engineers has not been stellar. It is also clear that we have found it easier to hire into the DSP group and the Verification group than into the IDE group. Moreover, our attempt to staff a Customer Engineering and Support organization has so far been totally unsuccessful. The technical skill combination of processor knowledge and GUI experience is almost non-existent in India, which we need for the IDE group. Similarly, for the CE and Support group candidates with the desire and ability to interact directly with customers at a deep technical level combined with hardware and software skills for the embedded space have been difficult to secure.
2. **Management and startup effort:** As the team there has grown and local team managers and leaders are in place, the management effort from the US has declined. However, in order to continue the close cooperation and joint development work that our technology requires it is still imperative that we continue to do the following:
  - a. Weekly or more frequent conference calls. These are generally at least an hour and often much longer. They are also generally at an inconvenient time for one of the parties. This, of course, is in addition to daily email exchanges.
  - b. Visits: Nothing substitutes for working together in the same location. We continue to visit each other's sites and spend a couple weeks to a couple months there. This helps not only in technical training, but also in imparting our culture and values, that we hope to recreate at TTI, Pune.

New managers and technical leaders must visit the US for an extended period for technical training and to experience and live our culture.

Of course, any time a new group begins in Pune, the startup effort is still quite intense. There is much more involvement of managers and others from the US to help in getting the new group trained and effective. Due to somewhat better support now available in Pune, due to a larger group, this startup effort is also easier.

3. **Build-Operate-Transfer Model:** This model was not particularly successful for us in the long run. It did help us get started in India with a very low initial investment. We would have found it almost impossible to convince the management team to start off directly with a subsidiary because of the large investment that is required to get off the ground and we had no experience in working in and with India. That risk was too high.

Once the Design Center operation had begun, we had some experience and contacts and were far more confident of building an engineering team within a subsidiary. For the type of operation we wanted to establish – a permanent facility with an excellent engineering team, building products there and complementing the team in the US – a full-fledged subsidiary is the way to go. It allows one to build one's own team and instill in it the culture and values that are required for success.

4. **Effect on the US Team:** This is a work in progress. There is certainly appreciation on part of several US team members of the direct benefit the company has due to the India team. The aspect of productivity of the team and total savings is not yet fully obvious to everyone. In order to get there, the overall productivity of the Indian team should increase further. In addition, the Indian team needs to be more confident and proactive on engineering and product issues. I believe this is a matter of time and additional experience with Tensilica technology.

There are now examples where additional responsibility and career growth has occurred in the US, due to opportunities in working with the Indian team. But, there is still sensitivity to growth in India versus here in the US.

## 5. Conclusions

The establishment of our own subsidiary in India has benefitted Tensilica. The four major challenges we had earlier have been addressed to varying degrees. Recruiting continues to be the greatest hurdle, and we do not see a quick solution on the horizon. It will be some time before India graduates many more well-qualified engineers, and then acquire the level of experience that we require. Even with this hurdles, the subsidiary is bringing business benefits and resource flexibility to the company. There are high expectations for the India operations and given the people we have hired, I am sure they are up to the challenges.