GAUTHAM VISWANADAM PROFILE

Gautham Viswanadam obtained his B.Tech (1980) and M. Tech (1982) degrees in the field of Metallurgy and Materials Technology from Indian Institute of Technology (IIT), Madras. He worked with the Indian Telephone Industries (ITI) in Bangalore from 1983 to 1995.

Gautham was one of the strong pillars in setting up a VLSI packaging and assembly facilities at ITI. This set-up was set up in 1990 - 1991 to support National defense and space communication device packaging from 1990 onwards. Mr. Gautham was responsible in obtaining Central government grants to set-up world class VLSI package development & production centre at ITI in 1991. This facility was recognized later, by Hitachi Semiconductors Japan for device subcontract activities. Currently this facility has become a part of National Defense Research & Development Organization (DRDO), in the name of SITAR.

In 1995, Gautham decided to proceed with an opportunity at General Motors (GM), USA / Singapore with the objective of experiencing an International manufacturing environment. He promptly took up a challenging role in GM's automotive electronics division in USA / Singapore.

During his stay at General Motors from 1995 to 1998, Gautham made some very significant contributions to the company's process development lines. Some of them include, (i) Improving the Fuel Vapour pressure sensor yields from 55% to 95% at the production line. (ii) Solved various silicon device manufacturing issues which ultimately resulted in a more efficient production line and reduced production costs (iii) Package Development of a Side Impact Sensor that is currently used in a number of automotives today.

In 1998, Gautham joined the Singapore Institute of Microelectronics (IME) to execute a Spin-Off company focusing on the MCM-D (Silicon Multi Chip Module) technology, licensed from Lucent Technologies (AT&T), USA. Through this spin-off, Gautham had become one of the founding members of a new Singapore company M/S Syspac Technologies Pte Ltd. Various technologies such as flip chip technology, RF ID Antenna development for 13.56 MHz transponders, Wafer Level Packaging technologies were developed and patented at Syspac Technologies.

In 2001, Gautham founded a private company in the name of Absara Microsystems. The objective was to build Intellectual Property in various semiconductor process & packaging technologies. Few patents were filed at Singapore and PCT levels and the same were granted later. A foundry was concurrently initiated in 2002, partnering with a Singapore Investor, which was to support the packaging needs of the Semiconductor wafer fabrication units in and around Singapore.

In 2004, Gautham headed the advanced Packaging division of Motorola at Kuala Lumpur, Malaysia. He had a responsibility to implement Flip Chip Technology transfer from Motorola USA to Motorola's Malaysia plant. He was also deputed to Motorola's various global automotive device customer sites to study their manufacturing processes and improve their product reliability and life. Three patents were filed by Gautham, while at Motorola, some of which are currently being pursued in production level at their various manufacturing sites. Gautham's contribution to Motorola was very significant with many patents, developments, improvements including implementing training programs for the production community (operator, Technicians, Engineers and Managers). Gautham's customer support

on automotive process control devices realized very high profits for Motorola's automotive division.

In 2005, Gautham took up a CTO (Chief Technology Officer) position in a new start-up company from Germany (M/S Schott Advanced Packaging, Singapore). Mr. Gautham was involved in bringing a University developed product to the production line. A world class production facility was set-up in Singapore to produce Wafer Level Packaging of Image Sensor devices. Some of these sensor products are used in Mobile phones, IPods, Laptops, CAD cams, digital cameras and other miniature gadgets.

Gautham has gained a vast experience in most of the semiconductor process / packaging issues and problem solving during his various assumed positions in the Semiconductor industry. He also gained management skills through his high positions held at various world class MNC's.

In later part of 2006, Gautham decided to settle down with his own developments / manufacturing and operations using his own IP portfolio / patents filed on Next Generation Level device technologies. His Technology innovative Patent / development work has been recognized by Singapore Government, and was awarded with a Technology Innovation Grant of S$250,000.00 for his new product development that is expected to be realized for production in 2010.

<u>The following is the list of publications and patents by Gautham Viswanadam:</u>

1) Fine Pitch Flip Chip Technology Published and paper presented in 1998 at IMAPS, International Conference, Japan (Later Patent granted on fine pitch high lead solder bumping using solder printing process)

2) Lead Free Solder for automotive device applications (Electroless Ni/Au with Sn/Ag/Cu solders). Published and paper presented in year 1999 at EPTC International Conference, Singapore

3) Mask less Lithography Published and paper presented in ECTC International Conference in year 1998, USA (Later Patent granted on mask less re-distribution process)

4) Wafer Level Packaging for Image Sensor devices, Published and paper presented in EPTC International Conference, Singapore, 1999 (Later Patent granted)

5) Invited speech delivered at Shanghai International Microelectronics Conference on "Challenges in Wafer Level Packaging for semiconductor devices." In 2003, Shanghai, China.

6) Invited speech delivered at Singapore International Microelectronics Conference on "Wafer Level Packaging process for Mobile device applications." Semicon, Singapore, 2005

7) Patent awarded for Three Dimensional device Packaging - 2007

8) Patent awarded for a cost effective packaging method for RF device applications - 20010

9) Patent awarded for a multi chip module using build up process at substrate level platform - 2010

10) Patent awarded for " Wafer Level Integration Module" which completely eliminates device packaging and assembly processes. Granted Aug, 2011

11) Patent granted for a Low Cost Lab On Chip (LOC) medical device using Glass substrates. (International Search & Examination has cleared the patent application for Novelty, Inventive step & manufacturing and grant is awaited. Patent has entered National phase filing at various countries)

12) International Publication" Polysilicon Interconnections (FEOL): Fabrication and Characterization , EPTC 2009, Singapore.

13) A total of 14 patents filed till date in various organizations including own ventures. Owns 8 US granted patents.

Major Achievements to date:

1. Set-up world class VLSi assembly & packaging plant at ITI, Bangalore (1989 to 1995)

2. Set-up world class Flip Chip / MCM production unit at Singapore Institute of Microelectronics – (1998-2001)

3. Set-up state of the art Ceramic device packaging plant (Propak Technologies Pte Ltd) at Singapore for assembly & package support for wafer fabrication units in and around Singapore (2001).

4. Significant profitable contributions made to multinational corporations such as General Motors, Motorola, Schott, in Singapore (2004).

5. Founded Microsys International (S) Pte Ltd in 2001 to focus on global solar energy business. Revenue achieved by the company in year 2008 – 2009 is over S$ 15 Million. (Position assumed currently – Chairman & Managing Director)

6. Spin-Off company founded (Intelligent Chip Connections Pte Ltd) in 2007 to focus on Semiconductor Intellectual Property (IP) development. Government Grants received for high tech product development. (Position assumed currently – Founder & Chief Executive Officer).

7. Founded a Trading & Logistics Company in Hong Kong ("Microsys Holdings Limited") to focus on Growing China Market. (Position assumed currently –Chief Executive Officer).

8. Founded a Joint Venture company (Aug 2009) " IPV Energy Corporation" along with a US venture company at Nevada, Las Vegas, USA for providing total solar energy power solutions in global presence. (Position assumed currently – Senior Vice President & Chief Technology Officer)

9. Founded a Technology development company ("SemSil Technologies Private Limited") in Bangalore, India to develop students knowledge base through Indian Universities. (Position currently held – Director & Chief Executive Officer)

10. Number of patents awarded with potential revenue in the future. Number of patents are pending grants.

Membership / Honorary Assignments:

1. Has been a Member of SEMI Organization, USA & Singapore
2. Member of Semi MEMS and Microfluidic Devices International Standards
3. A regular exhibitor at Semicon West, USA on company product developments & Technology Innovations.
4. Invited to be Adjunct Professor at Bangalore Technology Institute, Bangalore.
5. Technical Advisory Committee member & Visiting Professor at Sapoorna Institute of Technology, Channapatna, Bangalore.
6. Technology Center proposed at Mysore University and is under progress.
7. Visiting Professor at Mysore University, Mysore, Karnataka
8. Visiting Professor at CEERI, Pilani, Jaipur. Delivered MEMS Technologies Talk in November, 2011
9. Delivered Expert Lecture on MEMS Technology, at IISC, Bangalore, October, 2011
10. Delivered Expert Lecture on MEMS Technology, at IISC, Bangalore, October, 2011
11. Delivered Expert Lecture on System In Package Technology & international road map at Savitha Engineering College, Chennai, May 2013
12. Invited for Project Development programs on Semiconductor TSV Technology at IIT, Karaghpur.
13. Signed MOU with Rajalakshmi Engineering college, Chennai for the development & fabrication of polymeric microphone sensor in place of silicon to increase the sensitivity & reduction in cost.
14. Signed MOU with BL Labs, Chennai for advising and guiding their R&D team in various IP programs.