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Gérard Matheron,
Director of the
STMicroelectronics facility
in Crolles

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New international stature for STMicroelectronics

On 24 July STMicroelectronics and IBM signed a cooperation agreement to develop jointly next generations of silicon chip technology. The agreement comes shortly before the termination of the Crolles 2 Alliance, at the end of 2007. For Gérard Matheron, Director of the STMicroelectronics plant in Crolles, the agreement with IBM will give STMicroelectronics and the Crolles facility new international stature.

Does the agreement between ST and IBM mean the Crolles 2 Alliance will continue?

The Crolles 2 Alliance (between STMicroelectronics, Freescale and NXP) is due to terminate at the end of 2007. The agreement with IBM opens up broader international perspectives. So there is no sense of a break, but much more than just carrying on something that already exists. The Crolles 2 Alliance was a stage, an excellent learning process that has enabled us to take a step up internationally and to develop further our collaborative strategy. The Crolles 2 Alliance was calibrated, in terms of means and resources, to meet objectives related to the 65 and 45nm nodes set for a five-year period, from 2002 to 2007. But that configuration was no longer adequate for the following generations, due to their development cost increase.

Does the new agreement provide a scaled response to the needs of the site?

With current market trends it is essential to set new goals, to define the requisite conditions for producing next-generation microelectronics technologies, on 32 and 22 nanometre (nm) processes. To bridge

this technological gap, R&D investment must be tripled and expenditure on production tools doubled. STMicroelectronics already spends 15% to 20% of its budget on R&D and there is no question of exceeding that threshold. It was consequently essential to find a new configuration capable of meeting these needs. We had the choice between two possible attitudes: either we could give up, or we could affirm our determination to carry on. STMicroelectronics adopted the second option. Obviously our desire to remain involved in every stage of the industrial process, from design through to manufacturing, was important but it was not enough in itself. We had to demonstrate our ability to make a change of scale to join one of the world's main ecosystems.

There are three main semiconductor ecosystems worldwide. There is Intel, which does not want to enter into a partnership with its competitors; there are Asian foundries (TSMC in Taiwan and newcomers in China), with which there is a serious risk of social dumping; and lastly there is IBM and its research allies. Very quickly a technological alliance with IBM emerged as the right solution.

(...)
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Building innovation in Northern Isère

A centre of excellence now brings together the main players in intelligent building, particularly well represented in Northern Isère. Companies representing the building industry (Vicat and Lafarge, for cement and plaster; St Gobain, principally glass; Abzac, carton tubes; Ferrari, technical textiles), led by the local building federation, have joined forces with the Epida development agency, the Northern Isère Chamber of Commerce, and several higher education and research organizations (Les Grands Ateliers, ENSAG, CRATerre and ENTPE). The scheme draws on the three factors essential to sustainable economic development: production, research and training. At the top of the list of ambitious projects is an experimental village to showcase novel approaches to housing, energy, lighting and the environment. This full-scale trial venture will be a permanent fixture, with real occupants. And just nearby it is planned to build the Cité de la Matière, dedicated to materials with a prototype park, which will serve as a workshop for experimenting on projects before they enter the development stage.

Insight Outside optimises corporate event management

Grenoble-Isère is not only a great place to do business, it also boasts an attractive environment. Insight Outside has connected these two assets to specialize in corporate event management. One way to address and overcome the commercial and managerial problems facing many companies is to adapt the area's environmental resources to suit corporate requirements, with a dash of creativity and innovation to make all the difference.

Insight Outside offers companies a wide range of services facilitating the reception of customers, integrating new staff, hosting visitors during the week or at the weekend, optimizing meetings and handling the logistics for events. Insight Outside deploys custom-built solutions and inventive actions, drawing on our mountains, food, cultural life, outdoor activities and artistic creations, to produce an exciting cocktail that helps boost Grenoble-Isère companies. Leading local companies, such as HP, Soitec, CEA Minatec and Schneider Electric, have already used Insight Outside, which has brought new life to the incentive market.

> FEATURE <



Mr. Ingo Wassum Paul, CEO of the Grenoble's site, © Siemens

Siemens Transmission & Distribution has chosen Grenoble to boost production of 8DN8 gas-isolated switchgear. This type of substation, with its metal enclosure, is used to control electricity distribution on high-voltage networks, commonly located near cities. To manufacture these products, which are an off-shoot of Siemens's top-of-the-range technology, the know-how of production teams is an essential factor. For Ingo Wassum-Paul, the CEO of the Grenoble facility, the quality of local expertise and skills go a long way towards explaining why Siemens chose to locate here. The Grenoble plant adapted its assembly line to correspond to industrial practice in Berlin, enabling the company to continue an active hiring policy. It now has a workforce

Siemens chooses Grenoble

of 800 people in Grenoble and 12,000 in France as a whole.

The first 8DN8 switchgear produced in Grenoble have already been commissioned. This success is the fruit of close collaboration between French and German teams, which has been extended to include R&D, a field in which Grenoble-Isère skills have plenty to offer.

© Siemens



HP France joins Minalogic

Hewlett-Packard has joined the Grenoble-Isère micro and nanotechnology and software competitiveness cluster Minalogic, originally started in 2005. The computer manufacturer has been operating in Grenoble since 1971. This move consolidates its involvement in the local economy and confirms its determination to develop here, integrating the growing dynamic centring

HP-Intel Solution Center
© HP France



on nanotechnology and embedded software. HP will also be represented on the Minalogic board and will thus contribute to defining the industrial strategy of this world class competitiveness cluster in a rapidly evolving market. Workwise the arrival of HP mainly concerns collaborative projects focusing on service infrastructures for smart devices, a field in which the growth strategies of HP and Minalogic converge. HP intends to contribute its expertise to increase the reliability and security of embedded software projects.

HP Grenoble's key activities fit perfectly with the current business plan. The company is already playing an active role in Minalogic's intensive computation working group. It will also be providing the centre's small and medium-sized companies with an HP super-calculator rated at about 2 Teraflops (two thousand billion instructions a second).

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(...) IBM's experience in semiconductors goes back to their very beginning in the 1960s and the company's stock of innovation and creativity is a global benchmark. Our agreement with IBM will enable ST Crolles to move up to a different scale, which is essential to its development.

Does the change of scale concern research and production?

It's a change of scale for ST, and for the Crolles site. Initially the investment effort will enable us to optimise production capacity and increase output from 2,800 to 4,500 300mm wafers a week.

With this agreement STMicroelectronics is joining the IBM CMOS Technology Alliance, a durable ecosystem consisting of six industrial partners⁽¹⁾. From a financial point of view this alliance makes it possible to raise the budgets required for the technology generations based on 32nm and 22nm processes. IBM recognizes our capacity for collaboration and there is now a European centre and a US centre, both operating in two fields: upstream research and production.

There is no doubt that the assets of Grenoble-Isère, around the Minalogic competitiveness centre, weighed in the balance. Our potential for upstream research, along with CEA Leti, was a decisive factor. Until now the Albany Nanotech Centre in New York state was the only reservoir of brainpower serving the IBM CMOS Technology Alliance. The agreement between ST and IBM means that CEA Leti will become the Grenoble-Isère equivalent of the Albany centre.

What does the agreement involve in practical terms?

The agreement encompasses complementary metal-oxide-semiconductor (CMOS) technology, for which the focal point is IBM-US, but also enhanced technologies for system-on-chips (SoC), a field in which ST-Crolles is the market leader. Regarding high added value derivative technologies such as embedded memory and analog devices, there are many consumer applications, forming the backbone of our customer portfolio.

The fundamental change concerns the nature of our partnership. To use an image, the Crolles 2 Alliance worked in much the same way as a block of flats under joint ownership: each partner owned its own machines, came to Crolles to experiment on industrial research and shared the facility's production.

The agreement between ST and IBM opens the way for collaborative exchange. We will be moving up to a global integration model. Thanks to this agreement there will be reciprocal exchanges of teams between IBM and ST.

What impact do you expect this to have on production?

By boosting production capacity to 4,500 silicon wafers a week by 2010 we will be able to cover the full extent of demand from ST's customers, and more. The resulting margin for manoeuvre will enable us to offer excess output to other firms, regardless of whether they are IBM partners or not, as our agreement with IBM is by no means exclusive. ST also has the option of working with foundries all over the world in Singapore, Taiwan, Israel and so on. In this respect IBM's microelectronics club is very open, with each partner controlling the technology it owns.

What is the outlook for the future?

The Crolles 2 Alliance was a stage, a springboard to reach a truly international ecosystem and the definition of a business model for the next five years. The new agreement strengthens the position of Grenoble-Isère as a global world wide reference.

As for the market, after years of frantic growth (15% to 20% a year), the semiconductor industry has matured. We are currently registering annual growth of 7% to 8%, which is still twice the rate for global industrial growth.

We may look forward to the future with plenty of confidence.

¹ IBM (US), Samsung (South Korea), Chartered (Singapore), Infineon (Germany), Freescale (US), and STMicroelectronics (France).



MOS Transistor cut
© STMicroelectronics

Looking back

The Crolles 2 Alliance between STMicroelectronics, Freescale and NXP was a success. Between 2002 and 2007 Crolles 2 fully achieved its objectives, at three different levels.

Technically, the development of 90 and 65 nanometre processes has been completed and production is full steam now in these technologies. The 45 nanometre process is being finalised and will very soon enter volume production.

In terms of investment the Crolles facility is capable of producing 2,800 300mm silicon wafers a week, in line with initial forecasts.

On the employment front, the initiative has also proved a success, the original commitment to create 1,200 jobs having been largely exceeded. Nor does this figure take into account all the new induced jobs at subcontractors located in the Grenoble area. The long-term return on investment has also been extremely positive for all the players in the Alliance, for the companies themselves and for the local authorities which decided to back the partnership.

300mm Crolles clean room
and the Automatic Material
Handling System

© STMicroelectronics - Artechnique



> TIME OF <

Grenoble Isère airport

Air traffic has been registering steady, sustained growth since the new terminal opened in 2002. Originally built for the 1968 Winter Olympics, the airport recently underwent a complete transformation the better to serve as the gateway to the French Alps.

The air terminal can now handle up to one million passengers a year, with a high level of security. Up-to-date equipment goes hand in hand with dynamic management, to make the most of the whole area's assets. This year has witnessed a further extension of operations. During the 2007-8 ski season the Great Britain will be particularly well served, with flights to London Gatwick, Luton and Stansted, Liverpool, Nottingham, Bristol, Bournemouth, Birmingham, Coventry, Glasgow, Edinburgh and Dublin.

Six new routes in December

Airlines are currently focusing their attention on this winter, with the launch of flights to Germany, Sweden, the UK and the Netherlands. Transavia.com, an Air France-KLM subsidiary, is flying four round-trips a week from Rotterdam, and the low-cost operator TUIfly will be serving Cologne and Hamburg. These

destinations are attractive for business travel as well as optimizing speedy access to Isère ski resorts. Dutch visitors, the second largest customer base for local ski resorts, can now choose between a 12-hour drive or a 1 hour 20 minute flight. Such proximity should help boost the market for short ski breaks, while giving local people the opportunity to explore northern Europe at attractive rates. The start of flights to Birmingham and Bournemouth, with Easyjet, and to Stockholm, with Ryanair, will consolidate the new offering.

Quality of service

Over and above the range of European destinations on offer, from Brussels to Warsaw, a prime attraction of Grenoble-Isère Airport is its size. The car park is just next to the terminal, making quick boarding easy. With a youthful, dynamic team visitors can be sure of excellent

“Five million people live within an hour and a half's drive of Grenoble-Isère airport.”

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service, in an airport on a human scale. This is a very appreciable asset and a solid argument that has contributed to the airport's recent growth. Keen to build on this success a VIP terminal for business jets will be opening in December, offering a particularly attentive service for demanding customers.

Enquiries and bookings on www.grenoble-airport.com

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AEPI is the Grenoble-Isère Economic Development Agency. It provides companies with all the information and assistance they require to set up business in Grenoble-Isère: economic data, offers of building land, offices and industrial premises, meetings with local decision-makers, help with overall project management, notably funding, available grants, etc. Come and contact us.

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Director of publication: Jean-Paul Giraud, President of AEPI

Texts by AEPI and Point Com' - Layout and design by Point Com' (ref.892-11/06)
Translation by Harry Forster - Printed by Imprimerie des Eaux Claires.