



Drive to succeed

THE SPECTACULAR WORLD OF FORMULA 1 WOULD NOT EXIST WERE IT NOT FOR THE CONSTANT INNOVATIONS IN THE WORLD OF ELECTRONICS. AS ABU DHABI PREPARES A MOVE INTO THE GLOBAL SEMICONDUCTOR INDUSTRY, THE BRAINS BEHIND THE FORMULA 1 MUSCLE COULD SOON BE THE UAE'S NEWEST COMMODITY

WORDS | MATT ROSS

In 1971, American journalist Don Hoefler was discussing a series of articles he had written on the burgeoning technology industry of San Francisco's Bay Area with his friend, Californian entrepreneur Ralph Vaerst. On a whim, the two of them coined the phrase "Silicon Valley" in recognition of the growing reliance on silicon-based semiconductors in modern electronics – a label that has endured ever since. Nearly 40 years later, these electronic building blocks are found in nearly every aspect of daily life, from the simplest watch to the supercomputers of the Pentagon.

Nowhere is such technology more apparent than in the high-tech world of Formula 1. The pinnacle of modern motorsport, these million-dollar automobiles are crammed with electronic systems from nose to brake light. "You never really know how quick you are before you reach F1," Ferrari great Jean Alesi once said of the quantum leap between Formula 1 and the lower racing classes. Given that most race teams will spend between AED380million and AED2.3 billion each year squeezing a tenth of a second off lap times, there's no room for anything less than the best

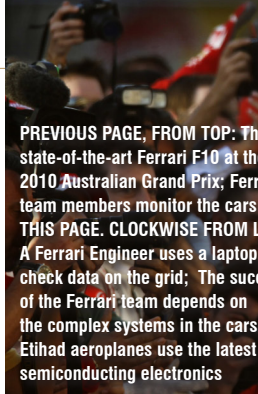
equipment money can buy. But while F1 cars are the most visible beneficiaries of this cutting-edge technology, reliance on these electronics – and the semiconductors that make them a reality – permeates the sport from the ground up.

One of the first organised motor races was held in Paris in 1887. Sadly for those assembled to watch, only one car showed up to the crude road track and the race was abandoned. More than 100 years later, modern circuits incorporate the finest technology. Richard Cregan, CEO of Abu Dhabi's Yas Marina Circuit, highlights just some of the ways in which modern tracks – and especially Formula 1 venues – must cater

for the needs of this high-tech sport. "The timing system must be accurate to 1,000th of a second; the electronic race flagging system has to be completely dependable; clear radio transmissions are essential for the emergency services, the marshals, the drivers, the mechanics, the team managers, the stewards and a whole host of organising staff." The list, it appears, is endless. "Then we have all the electronics associated with our lighting systems for the day-into-night races, air-conditioning for the pit garages, team buildings and hospitality areas, and up to 50,000 people trying to phone and send text messages at the same time." Running a world-class circuit such as Yas Marina is not ⇒



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PREVIOUS PAGE, FROM TOP: The state-of-the-art Ferrari F10 at the 2010 Australian Grand Prix; Ferrari team members monitor the cars
THIS PAGE, CLOCKWISE FROM LEFT: A Ferrari Engineer uses a laptop to check data on the grid; The success of the Ferrari team depends on the complex systems in the cars; Etihad aeroplanes use the latest semiconducting electronics



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merely aided by modern electronics; it simply couldn't function without them.

Formula 1 is not the only industry to benefit from the latest, most-efficient semiconductors. As Gerard Jeyalingam, technical manager of Etihad Airways' fleet of Airbus A340s points out, aviation also requires the most sophisticated equipment on the market. “In today's highly competitive environment, no serious airline can afford to be left behind in this area,” he explains. “Etihad must continue to take advantage of the latest advances in computer technology both on the ground and in its aircraft. In aviation, the scales almost always tip in favour of the airline with the most advanced systems.” The Etihad Airways fleet, and commercial aircraft in general, rely heavily on electronics and must be sure to remain ahead of the development curve. “Etihad is in constant contact with Boeing and Airbus in an effort to stay abreast of the latest developments in the aviation industry,” Jeyalingam says. “Our aircraft systems are constantly upgraded to ensure that all our planes fly from A to B in the safest, most efficient and economical manner.”

As a result of this need for better equipment, cutting edge technology companies are at the mercy of those who provide the building blocks. Optimal technology demands optimal materials and given that even the simplest computer circuit is built atop a semiconducting

wafer, there's a lot riding on this market.

So it's hardly surprising that Abu Dhabi is looking to break into the semiconductor industry. “Today, most semiconductor manufacturing is geographically isolated in one country [Taiwan],” explains Ibrahim Ajami, chief executive officer of Advanced Technology Investment Company (ATIC) – the Abu Dhabi, government-owned organisation tasked with stimulating revenue through investment in the advanced technology sector. ATIC owns a majority stake in GlobalFoundries, one of the world's leading semiconductor manufacturers and, through this particular investment, intends to situate Abu Dhabi as a part of this multi-billion dollar industry. Investing in several fabrication plants across the world, it's clear that Ajami has the big picture in mind. “ATIC envisions leveraging the strength of the global technology network, drawing on the talent and access to technology in our Singapore, Germany and New York fabrication facilities to make Abu Dhabi an advanced technology hub.” Decentralising the industry – worth an estimated US\$270 billion each year – also opens up the possibility of Abu Dhabi becoming a major player on the world stage. As ambitious as this sounds, it's also a necessary step in maintaining Abu Dhabi's vision for the future. “It's part of fulfilling the Abu Dhabi 2030 vision of diversifying our economy and building a knowledge-based

economy,” Ajami continues. “Semiconductors and microsystems are the backbone of modern technology. They're in our mobile phones, our televisions, our cars and the planes we fly in. Technology has revolutionised the way we live our lives.”

To this end, ATIC has unveiled plans to open up a fabrication plant in the capital. The purpose-built facility, located near Abu Dhabi airport, will be three square kilometres in size and will form the backbone of a technology cluster that will make the UAE a significant player in the world semiconductor industry. “We envision Abu Dhabi as a key hub in the global advanced technology network, with a semiconductor manufacturing facility in the Emirate as well as a robust technology ecosystem of partners,” Ajami outlines. But creating a successful and stable industry involves investment in not only facilities, but people to run them. “Successfully establishing the semiconductor industry here in the UAE relies on the availability of a knowledgeable and well-equipped workforce. It is people that are the driving force behind innovation, and we are committed to developing Emirati talent so that they have the opportunity to be the technological innovators of the future.”

Come November, the world will descend on the UAE's capital for the 2010 F1 Etihad Airways Abu Dhabi Grand Prix. The prestigious event is a global showcase of the height of technological endeavour, as the million-dollar cars sprint around the Yas Marina Circuit. Just a few years from now, however, the countless millions of semiconductors and microchips that constitute the brains behind the Formula 1 muscle could be designed and made just a few miles down the road.

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