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Linear Technology Corp.

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Introduction

Linear Technology Corporation is a distinct chapter in the annals of American industry—a story not just of business acumen and technical prowess, but also of visionary leadership and a unique company ethos. Founded in 1981, in an era dominated by the rush towards digital electronics, Linear Technology made a bold wager on the future of analog integrated circuits. By dedicating itself to this specialized—and often underappreciated—segment of the semiconductor market, Linear Technology established itself as a powerhouse in high-performance analog chip design and manufacturing.

The company's founding reflected both a rebellion against industry bureaucracy and an unwavering commitment to engineering excellence. Forged by veterans from National Semiconductor, most notably Robert Swanson and Robert Dobkin, Linear Technology grew rapidly out of Silicon Valley with the support of a small but determined team. They secured significant venture funding and built a culture where engineers were empowered to make pivotal decisions, shaping not just the products but the very identity of the company. This focus on talent, combined with an engineer-centric environment, led to extraordinary employee loyalty and helped build a reputation that drew top analog designers from around the world.

Innovation was at the core of Linear Technology's business philosophy. Rather than chasing the rapidly shifting tides of digital electronics, the company dedicated itself to solving the world's most difficult analog problems—from power management solutions to data conversion and signal conditioning. These innovations found their way into countless applications, serving critical needs in telecommunications, industrial automation, automotive electronics, defense, and consumer devices. Linear Technology's approach enabled it to maintain long product cycles, stabilize its revenue streams, and create a catalog of over 7,500 products, each playing a vital role in bridging the analog and digital worlds.

Financial performance soon became another pillar of the company's legacy. Eschewing the capital-intensive manufacturing that characterized other parts of the industry, Linear Technology's operating model allowed for enviable margins and remarkable consistency. The firm avoided the fate of many tech companies whose fortunes ebbed and flowed with cycles of obsolescence. Instead, Linear Technology won accolades for its prudent fiscal management, robust dividends, and shareholder value—a rarity in the unpredictable world of semiconductors.

Yet, the story of Linear Technology is as much about people and culture as it is about technology and finance. The company's ethos championed autonomy, responsibility,

and excellence at every level. It was a place where world-class engineers could thrive, and where leadership was built on trust in their curiosity and expertise. This culture proved to be a magnet, steadily drawing talent and fostering innovation until—after 35 years of independence—the company’s strengths became the crown jewel in a landmark acquisition by Analog Devices in 2017.

This book explores the journey of Linear Technology from its inception to its role today as part of a leading global analog technology powerhouse. Through twenty-five chapters, it chronicles the company’s milestones, triumphs, and challenges, the principles that underpinned its enduring success, and its lasting legacy within the technology sector. The story of Linear Technology Corp. is, ultimately, a testament to the value of focus, expertise, and the enduring power of a company built on the talents of extraordinary people.

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CHAPTER ONE: The Birth of Linear Technology Corporation

The early 1980s were a fascinating, almost paradoxical, time in the semiconductor industry. On one hand, the digital revolution was in full swing, with microprocessors and memory chips shrinking in size and exploding in capability. It was the dawn of the personal computer age, a future seemingly built on ones and zeroes. Yet, even as digital logic captured the headlines and the lion's share of venture capital, a quiet but equally crucial revolution was unfolding in the world of analog electronics. This was the landscape into which Linear Technology Corporation was born, a company that would not only defy the digital tide but also prove the enduring power of high-performance analog.

The genesis of Linear Technology wasn't a sudden flash of inspiration but rather a simmering dissatisfaction among a group of highly skilled engineers at National Semiconductor, a then-dominant force in the semiconductor world. National, like many large corporations, had its share of bureaucratic hurdles and internal politics that could stifle innovation and frustrate those eager to push technological boundaries. Among the most prominent of these restless minds were Robert H. Swanson, Jr., and Robert C. Dobkin, two names that would become synonymous with Linear Technology.

Swanson was a seasoned veteran of the semiconductor wars, having cut his teeth at pioneering companies like Transitron and Fairchild Semiconductor before landing at National. His journey through these early industry giants gave him a comprehensive understanding of the chip business, from design to market. At National Semiconductor, he had risen to the significant position of vice president for analog design, a testament to his expertise and leadership. Dobkin, too, was a formidable talent, serving as the Director of Advanced Circuit Development at National for more than a decade. Their combined experience and deep understanding of analog circuits formed the bedrock upon which Linear Technology would be built.

The decision to break away from National Semiconductor wasn't taken lightly. It was a calculated risk, fueled by a shared vision for a different kind of semiconductor company—one that was nimble, fiercely independent, and laser-focused on the intricacies of linear integrated circuits. Swanson, with his entrepreneurial spirit, firmly believed that analog chips, far from being a relic of the past, held immense promise for the future. He recognized that while digital chips processed information, the real world—with all its messy, continuous signals like temperature, pressure, and sound—was inherently analog. Digital systems, therefore, would always require a robust analog interface to interact with reality.

This foresight was crucial. In an industry seemingly obsessed with the next microprocessor or memory chip, Swanson saw an untapped potential in the foundational technology that made digital systems possible. He envisioned a company that would not just dabble in analog but would master it, developing high-performance, high-profit analog chips that could enable entirely new applications. It was a bold stance, swimming against the prevailing current of the industry, but it was a conviction shared by his soon-to-be co-founders.

Armed with this vision, Swanson and Dobkin, along with two other former National Semiconductor colleagues, Brent Welling and Brian Hollins, embarked on the challenging journey of securing venture capital. In the competitive landscape of Silicon Valley, securing funding for a new semiconductor venture, especially one focused on a niche like analog, was no small feat. Yet, their reputation, experience, and the compelling clarity of their business plan resonated with investors. They successfully raised \$5 million in venture capital funding, a substantial sum for the time, providing the crucial seed money needed to transform their ambitious ideas into a tangible enterprise.

The departure of such key talent naturally caused ripples at National Semiconductor. It's often recounted that Charlie Sporck, the formidable CEO of National Semiconductor at the time, was less than pleased with the exodus. Losing top engineers, especially those with such deep institutional knowledge and design prowess, was a significant blow. But for Swanson and his team, it was a necessary step towards realizing their dream of building a company free from the bureaucratic constraints that had begun to chafe. They wanted to create an environment where engineering excellence was paramount and where the pace of innovation was dictated by ingenuity, not corporate red tape.

From its very inception, Linear Technology was designed to be different. Its mission was clear: to develop advanced, high-profit analog chips that would not just support but enable the new applications driven by the burgeoning digital technology. They weren't interested in competing directly with the digital giants; instead, they sought to carve out a critical and indispensable role in the ecosystem of electronics. This foundational principle, established in the early days, would guide Linear Technology for decades, shaping its product development, business model, and ultimately, its enduring legacy as a leader in high-performance analog integrated circuits. The stage was set for a company that would prove that in a world increasingly defined by the digital, the continuous, nuanced signals of the analog realm were more vital than ever.

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