

SAMSUNG

HEART OF SMART

2016 CORPORATE BROCHURE FOR DEVICE SOLUTIONS



\$177B

Samsung Electronics posted revenue of \$177B for 2015

319,000

Samsung Electronics employs over 319,000 talented professionals.

7th

Forbes ranked Samsung Electronics as the 7th Most Valuable Brand in 2016.

OVERVIEW

Samsung Semiconductor, Inc., based in a new state-of-the-art headquarters in the heart of Silicon Valley is a multi-billion dollar subsidiary of Samsung Electronics Corp. The organization provides the world's most advanced technology for use in the smart phones, consumer electronics, computing platforms and other devices that people use every day. Among the products researched, developed, and/or sold by Samsung DSA are state-of-the-art memory, logic, solid-state drives, host-based software, LED components and LCD/OLED displays, which are enabling today's most connected digital devices.

80,000

Samsung Electronics has more than 80,000 employees across 42 global R&D centers, representing 36 percent of its overall workforce.

96

Samsung Electronics has business facilities and offices spanning 96 countries worldwide.

#3

In 2016, Brand Finance rated Samsung #3 as the most valuable brand.

R & D

Extensive R&D expansion in Silicon Valley allows Samsung to work directly with customers to develop innovative technologies and solutions that deliver increased value to their products.

MEMORY SOLUTIONS LAB

The Memory Solutions Lab's mission is to develop the most innovative component-related architectures, technologies and methodologies, including open system architecture reference designs and host-based software, that transform the performance of semiconductor memory and storage in SSDs and data centers.

SAMSUNG DISPLAY AMERICA LAB

The Display America Lab develops technologies, interfaces, algorithms and standards for Samsung's next-generation LCD and OLED displays. Its mission is to drive multi-disciplinary innovation for greater industry leadership and superior display products.

SAMSUNG AUSTIN R&D CENTER

Also known as SARC, this lab develops high-performance, low-power, complex CPU and system IP (coherent interconnect and memory controller) architecture and designs for Samsung's system logic division.

DEVICE LAB

The Advanced Logic Lab develops the logic technology roadmap for the future. Its research areas include computational device physics, materials science, interface chemistry, and device/circuit interaction.

NEW MEMORY TECHNOLOGY LAB

The New Memory Technology Lab undertakes advanced R&D in materials and process development, modeling and simulation, and design and characterization of new non-volatile memory technologies.

ADVANCED IMAGE RESEARCH LAB

The Advanced Image Research Lab develops state-of-the-art CMOS image sensors and machine-learning-based algorithms for visual recognition.

MODEM LAB

Samsung's Modem Lab develops cellular modem chipsets and global navigation receivers for future generations of mobile devices.

FOUNDRY

By concentrating on the most advanced process nodes, Samsung's foundry business has grown into one of the premier manufacturers of low-power, high-performance SoCs for the fabless semiconductor industry. With considerable investment in R&D and capacity, Samsung Foundry is poised to maintain its leadership position well into the future.

10nm, 14nm & 28nm

10nm FinFET is a viable technology solution for those working on mobile, consumer electronics or networking chip designs. Our full process design kits (PDK) and silicon-verified IP are now available. Our 14 low-power early (LPE) is a 1st generation FinFET process technology, focuses on early time-to-market (TTM) requirements. 14 Low Power Plus (LPP) process is an enhanced 2nd generation FinFET process technology with 14% additional performance or 14% lower power than 14LPE. 28FD-SOI is a cost-optimized technology, delivering ultra-low power to high-performance designs (wide range) for faster, cooler, simpler SoCs. It comes with RF and eNVM derivatives.

28LPS polysilicon gate technology is ideal for early adopters and cost sensitive applications whereas 28LPP provides low-leakage, cost-optimized high-k metal gate (HKMG) technology for greater power-efficiency in mobile and other consumer electronic devices. 28LPP-RF: advanced RF functionality is built right into the SoC design, with the low-leakage benefits of 28LPP. 28LPH delivers high-performance HKMG process for high-end applications in the compute and networking segments.

INTERNET OF THINGS

Samsung memory, logic, image sensors, display technologies, ARTIK module and smart LED solutions are at the epicenter of the Internet of Things. These components simplify how consumers interact, access data, store files and enjoy incredibly rich imagery.

MOBILE FLASH STORAGE

Samsung's industry-first 256GB UFS 2.0 and eMMC 5.1 memories will provide faster speeds, enhanced security and greater efficiency in executing commands. This latest industry standard, ultra-fast UFS is playing a key role in IoT and today's mobile devices.

MOBILE DRAM

Samsung's industry-leading 20nm 12Gb LPDDR4 provides 30% greater power efficiency, while offering double the performance of LPDDR3. The chip allows for 6GB densities and can support UHD video recording/playback plus continuous shooting of images with over 20 megapixels.

CMOS IMAGE SENSORS

Employing groundbreaking ISOCELL technology, Samsung's imagers have decreased crosstalk by 30%, increased brightness by 25% and introduced a 56% wider chief ray angle, which should greatly improve low-light performance and help to de-noise images, a common problem with small smartphone sensors.

APPLICATION PROCESSORS

Samsung's Exynos family of ARM-based processors gives system-level designers the ability to develop smartphones, tablets, wearables and other IoT devices that meet the consumer's growing need for powerful, energy-efficient devices. These processors enable innovative applications utilizing Bio-Processors, and secure authentication and payment.

LED

Samsung new smart lighting module (SLM) is the most fundamental IoT building block for the fast-growing, smart building and smart city markets. In addition, Samsung's Artik mobile platform provides all the essential hardware and software building blocks to allow faster, simpler development of new enterprise, industrial and consumer IoT applications.

LCD

Liquid crystal displays have been the primary display technology for years. Available in sizes up to 105 inches diagonal, many Samsung Display panels have a color gamut as high as the bellwether Adobe RGB, in addition to Full HD and UHD resolutions in curved and flat designs.

OLED

Benefitting from extensive research, Samsung Display OLED (organic light emitting diodes) panels boast a color gamut that exceeds that of most TVs today - at more than 100 percent of the NTSC standard, and dazzle with Full HD or UHD resolution. They are primarily found in smartphones (gateways to the IoT) and other mobile devices today, but are also expected to be widely used in TV sets, automotive applications and transparent digital signage in the future.



IT INFRASTRUCTURE

Samsung is enabling the IT infrastructure to function at its most optimal levels, by making the highest performing and most power-efficient DRAM and solid state storage, as well as "new age" displays for data centers and network computing platforms.

SSD

With densities up to 15.36TB, Samsung's SSDs are ideal for applications that include SQL database logs, OLTP, media streaming, virtualization, video-on-demand, front-end web and an abundance of cloud applications such as social media. Samsung SSDs are available with SATA, SAS, PCIe and NVMe interfaces, offering random read speeds up to 1,000,000 IOPs.

DRAM

To maximize the efficiency of virtually any type of server, Samsung offers the most advanced DDR3 and DDR4 memory. With speeds up to 2400 mbps (DDR4) and power levels of only 1.2 (DDR4) and 1.35 (DDR3) volts, these components deliver the highest densities (128GB) and the most advanced (20nm) process technology for data center use.

LCD

Displays play a critical role in helping IT managers to keep command & control and other remotely monitored data centers running on time and on track, while operating at maximum efficiency. Samsung's LCD displays offer exceptionally high contrast, and full HD or UHD resolution, which are key to getting the best out of a 24/7 operation.



SAMSUNG

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