

Fujitsu
Semiconductor
America, Inc.

Corporate Profile



shaping tomorrow with you

President's Message



"Smart" and interconnected devices are rapidly transforming our lives. Many of these devices rely on sophisticated semiconductor technologies from Fujitsu. Our global customers look to us to provide the advanced solutions they require to compete in fast-moving markets.

To meet our customers' needs, we integrate hardware and software to create intelligent, cost-effective platforms that reduce development time. We leverage the expertise of other members of the Fujitsu Group and third-party partners to provide advanced, environmentally friendly solutions for the global consumer, communications, automotive and industrial markets.

Here are some highlights.

Semiconductor Manufacturing Services= – We provide ASIC, COT and foundry services. For example, our ultra-fast 56 GSa/s 8-bit analog to digital converter will help provide a path beyond 100Gbps Ethernet. An industry first, this innovative solution meets the performance and power requirements of next-generation long-haul optical systems.

Imaging Products – Fujitsu has a long history of developing industry-leading image-processing technologies. Our "Milbeaut" ASSPs, which provide up to 16 megapixels and support H.264, are used in digital cameras and smartphones worldwide. Our bi-directional, single-chip H.264/MPEG-2 transcoders support full high-definition video and audio-data conversion. And our 360-degree Wrap-around Video-imaging Technology creates a true hemispheric view of a vehicle's surroundings.

Graphics Display Controllers (GDCs) – Fujitsu is the global leader in the embedded graphics market. For nearly two decades we have been bringing the most advanced 2D and 3D graphics devices to market and making those products available for an extended period of time. Moreover, Fujitsu optimizes its products for memory- and power-constrained embedded applications that support multiple, high-resolution display panels.

Memory – Our Ferroelectric Random Access Memory (FRAM) is a nonvolatile, rewritable memory technology with a faster writing speed and higher endurance than competitive technologies. FRAM has many exciting industrial and medical applications. When used in metering applications, for example, FRAM can help avoid data loss during blackouts. When combined with RFID technologies, FRAM simplifies the process of tracking products, even medical and pharmaceutical devices that undergo radiation treatment.

Other Product Areas – Our product family also includes wireless ICs, microcontrollers (MCUs) and analog solutions. Close to half a billion chipsets incorporating the RF solutions developed by the Fujitsu wireless team are being used by leading global companies today. Our MCUs are used by industry leaders worldwide in automotive, consumer, industrial, medical and smart-energy applications. Our analog solutions include power management ICs (PMICs), digital to analog converters (DACs), Spread Spectrum Clock Generators (SSCGs) and phase locked loops (PLLs).

The Future

Over the years, our products have justly earned a reputation for quality and reliability. Our commitment is to expand and enhance that reputation with integrated solutions and platforms. We will listen to our customers and develop and integrate technologies to provide the complete platforms they need. In so doing, we will earn their business and respect, as we help them succeed and prosper.

A handwritten signature in black ink that reads "Satoru Yamaguchi". The signature is written in a cursive, flowing style.

Satoru Yamaguchi
President and CEO

Corporate Overview

Fujitsu Semiconductor America, Inc. (FSA) is a leading designer and developer of innovative semiconductor solutions for new generations of consumer, communications, automotive and industrial products. The company provides a comprehensive portfolio of high-quality, reliable semiconductor products and services throughout North and South America.

Founded in 1979 and headquartered in Sunnyvale, California, FSA (formerly Fujitsu Microelectronics America) is a wholly owned subsidiary of Fujitsu Semiconductor Limited (FSL), Japan. FSL, which was established as a subsidiary of Fujitsu Limited in 2008, offers semiconductor solutions through its sales and development network in Japan and throughout Asia, Europe, and the Americas.

Fujitsu is a leading provider of information and communications technology-based business solutions for the global marketplace. With approximately 170,000 employees supporting customers in 70 countries, Fujitsu combines a worldwide corps of systems and services experts with highly reliable computing and communications products and advanced microelectronics to deliver added value to customers. Headquartered in Tokyo, Fujitsu Limited is traded on the Tokyo Stock Exchange (TSE:6702).

Fujitsu Semiconductor America is a leading designer and developer of innovative semiconductor solutions for new generations of consumer, communications, automotive and industrial products.

ISO 9001:2008 and ISO/TS 16949:2002 Certifications

Since July 2008, FSA has been ISO 9001:2008 certified for the sales, marketing, design and development of ICs in its California and Michigan locations. FSL has held the ISO/TS 16949:2002 certificate for the design, development and manufacture of ICs for automotive use since December 2003. FSA is committed to further improving processes to assure ISO quality and maintain excellent business standards.



Products and Services

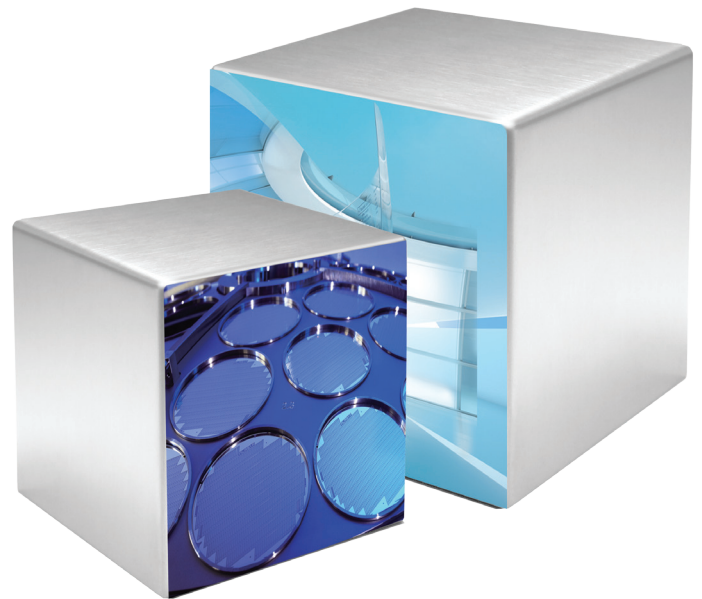
Semiconductor Manufacturing Services

Customers benefit from Fujitsu's advanced design expertise and wide range of services – from full turnkey ASIC solutions to foundry engagement. The company's experience in high-speed analog design, ARM® processor subsystems, high-speed interfaces, and high-performance package design enables customers to achieve optimum silicon solutions and quick time-to-revenue.

ASIC and Foundry Services

Technologies and Services – Fujitsu transforms customers' product concepts into leading-edge semiconductor solutions quickly and cost-effectively. The Fujitsu technology platforms integrate advanced processes, proprietary design methodology, application-optimized IP and packaging capability to deliver reliable, high-speed and low-power products. Fujitsu's technology platforms range from 180nm to 28nm nodes, offering customers extensive choices to meet their requirements.

Data Converters – Fujitsu's high-speed analog-to-digital (ADC) and digital-to-analog (DAC) converter technologies are designed for OTU-4 Optical Transport Networks. Fujitsu's

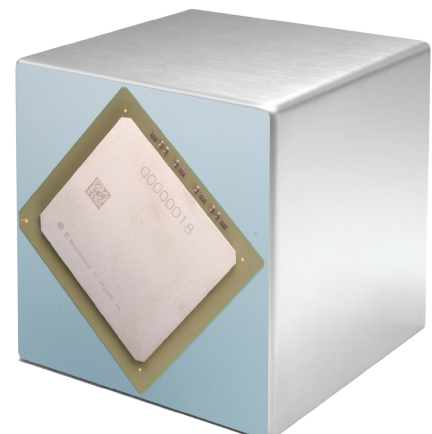


revolutionary CHAIS technology and low-noise package design techniques make it possible to implement single-chip coherent transceivers. An industry first, this innovative solution meets the performance and power requirements of long-haul optical systems, providing data rates at 100Gbps and beyond.

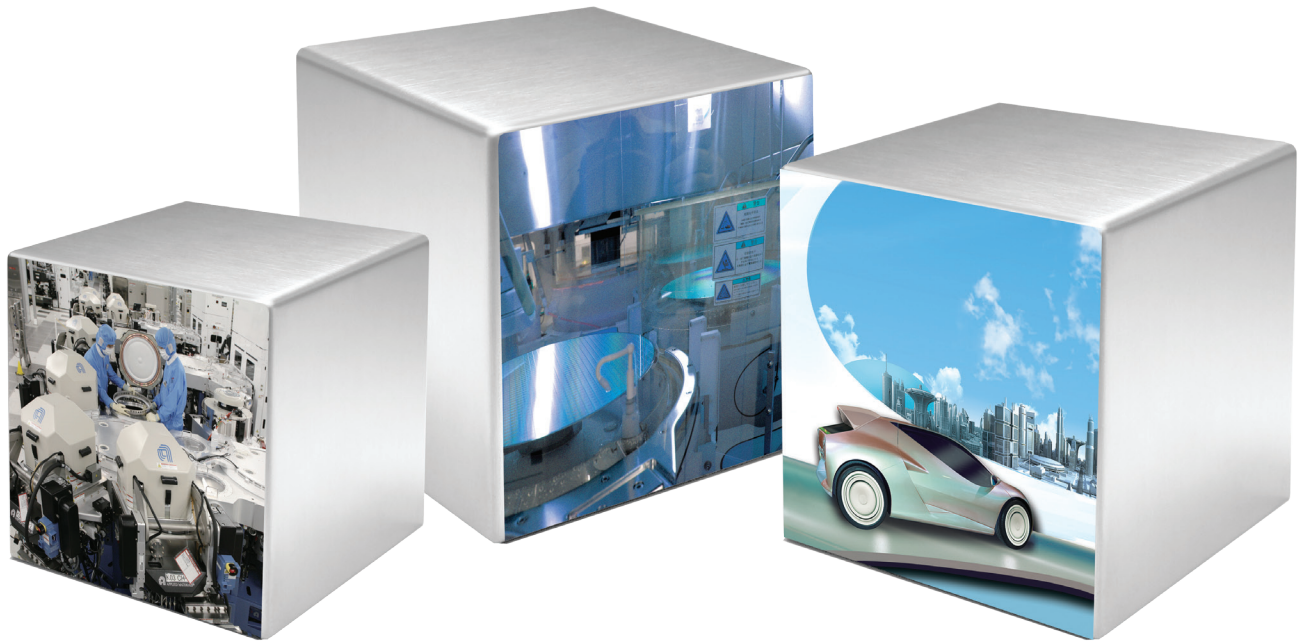
Fujitsu's portfolio of data converters also includes a family of low-power 12-bit ADCs. These ADCs are critical building blocks for a new generation of portable devices for analytical, imaging and measurement applications.

Quality and Reliability – Fujitsu invests vast technical resources to develop and qualify process technologies, design IP and package technology in every silicon solution platform to ensure that all products and services meet the highest quality and reliability standards in the industry. This commitment to quality guarantees a dependable supply chain partner.

Customers benefit from Fujitsu's broad range of services, from full turnkey ASIC to foundry engagement.



Fujitsu develops solutions for new generations of consumer, communications, automotive and industrial products.



Standard Products

Fujitsu offers an extensive family of application specific standard products and platform solutions, including graphics display controllers, embedded MCUs and controllers, video and image processors, analog devices, wireless ICs and memory solutions.

Graphics Display Controllers

Fujitsu is the global leader in graphics display controllers (GDCs) with a complete family of products designed specifically for embedded applications. Fujitsu combines advanced, proprietary display controller functionality with higher performance graphics-rendering capability to produce single-chip and chipset solutions for embedded applications that are using TFT LCD panels. The Fujitsu GDC roadmap is well-established through 2017, making Fujitsu the secure supplier for embedded graphics applications.

Automotive-Grade GDCs – The Fujitsu GDC product family includes graphics controllers optimized for automotive applications including instrument clusters, in-dash navigation, heads-up displays and rear-seat entertainment systems. The Fujitsu GDCs are designed from the ground up to operate under the harsh automotive environment.

GDCs for Medical and Industrial Equipment – Fujitsu's GDCs are helping meet the need for small-form-factor color LCDs in applications previously limited to simpler user interfaces. The GDCs from Fujitsu are also ideally suited for new, low-cost medical, avionics and industrial systems, as

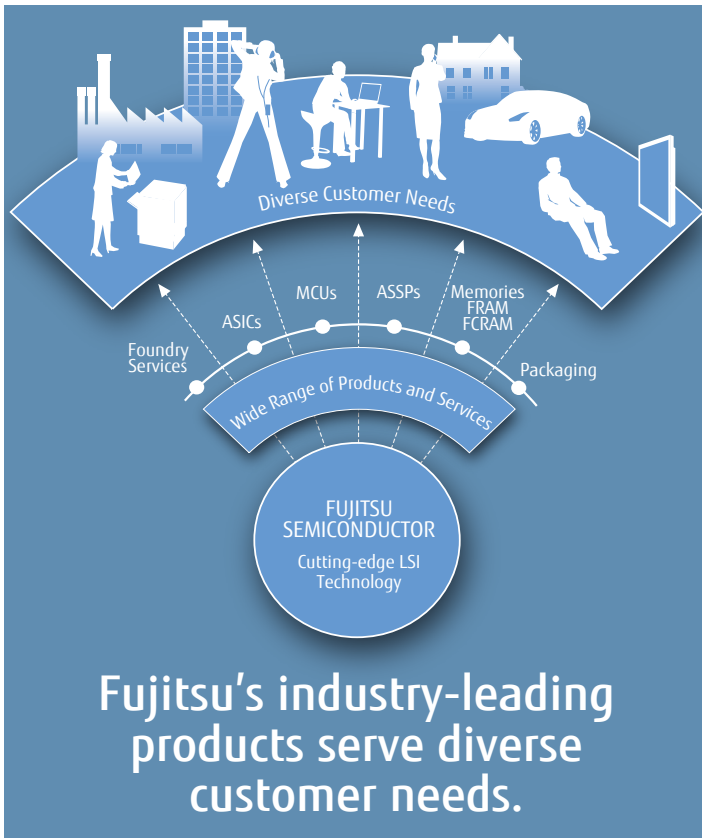
well as for virtually any application needing a highly efficient display management system.

Embedded MCUs and Controllers

Automotive MCUs – Fujitsu continues to expand its MCU families for automotive applications. The 16FX architecture, which incorporates the reliable LIN and CAN interfaces, features optimized performance and low power consumption. Fujitsu also provides SHE (Secure Hardware Extension) enabled 32-bit MCUs in the FCR4 ARM® Cortex™-R4 CPU embedded series for the latest automotive security applications.

Fujitsu is the global leader in graphics display controllers. The Fujitsu GDC roadmap is well-established through 2017, making the company the secure supplier for embedded graphics applications.

Microcontrollers for Consumer and Industrial Markets – Fujitsu develops and markets general-purpose and application-specific 8-, 16- and 32-bit MCUs for consumer, industrial, medical and smart-energy applications. Fujitsu developed a special ASSP for Internet appliances and other emerging applications that require high-quality encryption capabilities.



Milbeaut Image Processor – Fujitsu’s image-processing ICs for cameras deliver high-definition imagery and fast processing speeds with low power consumption. The product line meets the requirements of widely used digital SLRs, compact DSCs and mobile phone cameras. The single-chip technology offers all the functions these cameras require including the image 3A’s (AWB, AE and AF), image and video compression, noise reduction, and memory-card processing.

Analog Solutions

Fujitsu’s highly efficient, world-class analog products are based on mixed-signal design capability coupled with low-power process technology. Custom design services for power management are available upon request.

Power Management ICs – The Fujitsu lineup of PMICs includes DC-DC converters, battery-charger ICs and voltage-level monitors. The PMICs, which have been adopted particularly in consumer electronics such as digital cameras, printers and camcorders, are also used in newer platforms like medical equipment, handheld devices, smartphones and mobile PCs. Easy DesignSim™, a web-based design simulator for Fujitsu’s PMICs, can save designers significant time.

Digital to Analog Converters – Fujitsu’s high-resolution 14-bit DACs support conversion rates from 1.3GSa/s to 12GSa/s. The converters feature the shortest propagation delay for 1GSa/s DACs, which is critical for low-latency control applications. Fujitsu DACs offer outstanding performance for high direct IF above 200MHz.

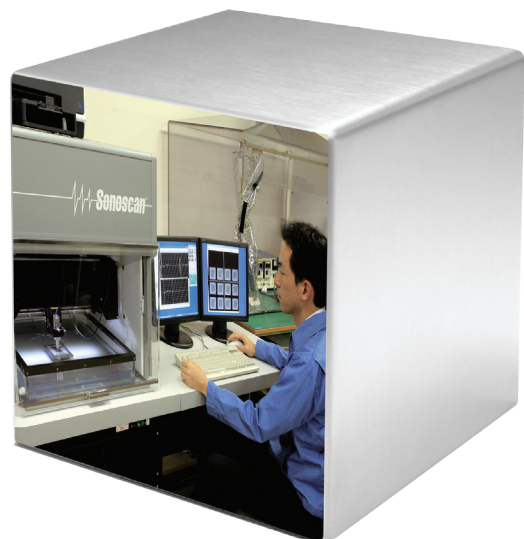
Phase Locked Loops – Ultra-low-power PLL devices use either Integer-N or sigma delta fractional-N methods. These devices come with competitive packages including the space-saving QFN package, which takes up a fraction of the space of conventional TSOP or SSOP packages.

FM3, FM4, and FM0+ Families – Fujitsu offers a wide range of 32-bit MCUs based on ARM® processor cores. The Fujitsu FM3 family of 32-bit general purpose MCUs features the ARM® Cortex™-M3 CPU, providing a scalable platform for many consumer and industrial applications. The MCUs include a host of peripheral features, including motor control timers, ADCs, a wide range of communication interfaces and an operation supply voltage range up to 5.5V, resulting in a robust design that is unique among Cortex-M3 microcontroller families.

The FM4 family of 32-bit general purpose MCUs is based on the ARM® Cortex™-M4 processor core. This family, which features DSP and floating point (FPU) functions, covers the highest end of the product range. For basic and low-power applications, Fujitsu offers its FM0+ family of devices based on the Cortex-M0+ core.

Video and Image Processors

H.264/MPEG-2 Transcoders – The company’s bi-directional, single-chip H.264/MPEG-2 transcoders with integrated memory (FCRAM) support full HD video (1920 x 1080) transcoding/transrating and audio data conversion. The devices combine industry-leading low-power consumption, high image quality, lower processing burden, and the audio transcoding and security functions necessary to protect digital broadcast content. This flexibility of format, bit rates and resolution makes the transcoders suitable for use in products worldwide.



Spread Spectrum Clock Generators (SSCGs) – Fujitsu’s SSCGs reduce electromagnetic interference noise that results from system clock generation. The SSCGs minimize the need for other shielding components like bypass capacitors, choke coils and ferrite beads, lowering the BOM cost and reducing the PCB area. The product lineup includes single- and multi-channel versions.

Wireless Solutions

RF Transceivers – The Fujitsu multiband, multimode transceiver family reduces cost and complexity, and dramatically speeds up time to market for new products. The family includes the industry’s first commercial multimode transceivers to eliminate 3G and 4G interstage TX and RX Surface Acoustic Wave (SAW) filters and Low Noise Amplifiers (LNAs). Other advanced features include low power consumption, a small footprint, and a highly flexible API.

The multimode transceivers make it possible for wireless device manufacturers to introduce both regional and global devices with roaming capabilities in almost any combination of bands and modes, and be compliant with 3GPP requirements.

Memory Solutions

Ferroelectric Memory (FRAM) – FRAM combines the non-volatility of Flash and EEPROM with performance similar to SRAM, bringing a unique set of advantages to both stand-alone memory chips and embedded memory. Pioneered and refined by Fujitsu for more than a decade, FRAM has a proven track record in applications that demand any combination of non-volatile storage, high security, high speed, low power, durability and radiation tolerance. FRAM applications include data loggers, RFID tags, metering, and other industrial and medical devices.

Fujitsu is a pioneer in FRAM, which outperforms other non-volatile memories like Flash and EEPROM in speed, power and endurance.



On the Horizon

GaN HEMT Technology

Fujitsu is developing a Gallium Nitride (GaN), high-electron mobility transistor (HEMT) technology that can significantly increase efficiency for power devices, including electric and hybrid vehicles. Today, these vehicles lose significant energy at each stage of power delivery – generation, transmission and consumption – due to the power-conversion process. The enhanced GaN HEMT technology Fujitsu is developing should provide better energy efficiency and higher speed switching. In addition to cars, the upcoming GaN HEMT technology is well-suited for a variety of other electronic applications including mobile phones, servers, telecommunication systems, and PCs. Other applications include switching power supplies, UPS and industrial motor control, clean tech, and power factor correction (PFC) controllers.

Fujitsu Security Accelerator IC for Automotive Applications

The new Fujitsu general-purpose security LSI offers maximum efficiency for automotive applications such as electronic control units (ECUs). The device provides support for multiple, industry-standard encryption methodologies – including encrypting /decrypting SHA-2, RSA2048, and AES128/256 – with minimum host CPU workload. A standard parallel interface enables easy integration into new or existing ECU system designs. Secured command processing within the device and encrypted communication with the host’s CPU provide the anti-tampering capabilities security applications require. Design support software allows system designers to easily take advantage of the device’s features.

Product Offerings

ASIC and Foundry Services

- Full turnkey ASIC solutions
- Foundry services
- Advanced packaging

Graphics Display Solutions

- 2D/3D GDCs and SoCs
- Automotive-grade GDC
- 360-degree Wrap-around Video-imaging Technology

Embedded MCUs and Controllers

- 8-, 16- and 32-bit MCUs, including the FM3, FM4 and FM0+ families of ARM®-based 32-bit MCUs
- Automotive MCUs and network solutions including the FCR4 family of ARM®-based 32-bit MCUs

Video and Image-Processing Solutions

- HD transcoders
- Image-processing ICs

Analog Solutions

- Digital to analog converters
- Phase locked loop devices
- Power management ICs
- Spread Spectrum Clock Generators

Wireless Solutions

- RF transceivers

Memory Solutions

- FRAM and RFID ICs

Fujitsu Semiconductor Group Environmental Policy

For more information about our environmental policies and practices, please visit:
<http://www.fujitsu.com/global/services/microelectronics/environment/>.




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