

Socionext Inc.

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<http://socionext.com>



socionext™

for better quality of experience

socionext™

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CORPORATE PROFILE
2018.10

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for better quality of experience

Socionext's brand promise, "for better quality of experience," expresses not only our determination to improve the performance and functionality of our products and service, but also the reflection of our goal to provide new value to people throughout the world, thus contribution to a prosperous society.

Management Philosophy

We are creating a company to achieve globally competitive value through sustainable growth. This will lead to the happiness of employees and all other stakeholders.

Management Vision

As a leading open innovation company, we work together with many partners to provide optimum solutions and services to our customers. We innovate the way people live and provide a better Quality of Experience.

The name Socionext comes from our vision and values:



S O C _ SOC (System-On-Chip), our core business area

I / O _ IO, Input and Output, a fundamental element constituting semiconductors

O N E _ One, our goal: to be number one

N E X T _ Next, forward-thinking, looking to the future

E X T _ Ext, short for "extension," as we strive to reach new opportunities globally



We are building on our expertise in the imaging, networking, and computing sectors as we work to create new value and contribute to a better society. To that end, we are providing new products and services globally, and we will go beyond the bounds of our established businesses to create the value our customers truly want. We believe that, in this way, we will contribute to a "Better Quality of Experience" and help make people's lives more convenient, enjoyable, and prosperous.

We will update you on our progress as we meet new challenges.

Masahiro Koezuka, Chairman & CEO

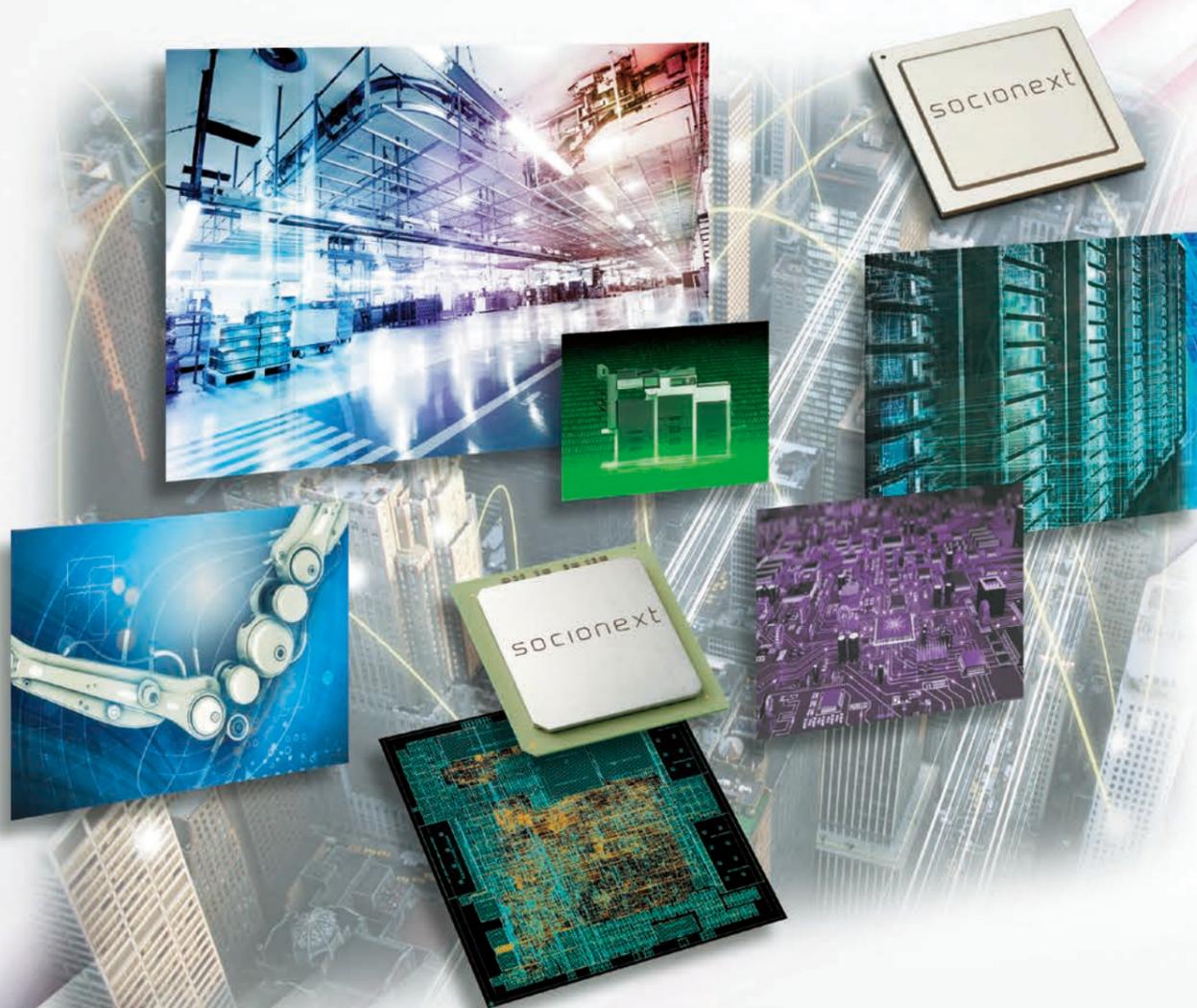
Amane Inoue President & COO

肥塚 雅博

井上 博

Awesome Technology Solution for Better Quality of Experience

Our cutting-edge global technology in the fields of video / imaging, networking and computing has been cultivated over many years. Through the synergy of six business units, Socionext creates new solutions that revolutionize the experiences of our customers, as well as those of people around the world.



Realizing World's Highest Level of Video Experience through SoC and Software Exploiting the Latest Technology

We have expertise in all aspects of the video imaging field - from "Input" technology of video capturing and authoring to "Output" technology of graphics and display, including video encoding technology in between. We are industry professionals using state of the art technologies such as high compression, high image quality, high speed video processing, and huge capacity data transfer to provide high performance SoC and software that can be applied in various applications such as digital cameras, digital audio-visual equipment, multi functional printer, full graphics cluster, and information terminals. We offer the world's highest level comprehensive solutions in the video imaging field, where technological innovation is progressing at a breakneck speed and imaging contents are becoming multi-faceted for both producers and viewers.

Realizing Customized Proposal Type Solutions Using Our Vast Design Resources and the Cutting-Edge Technology

Computers, communication network devices, and embedded systems are becoming more multi-functional nowadays, demanding larger and more complex SoC (System-on-Chip) circuits. With the cutting-edge technology and our rich design resources cultivated over many years, we provide sophisticated solutions to enhance the value of our customer's products. In addition, we have very close relationships with our partners, such as foundries, which allow us to provide high-value products in a timely manner in advanced technology fields such as optical communication networks, cloud computing, and big data, which support the social infrastructure that underpins people's lives.

Visual Solution BU

Comprehensive Solutions Support Both Hardware and Software to Provide the Best Video and Audio

Advances in resolution are progressing from 4K to 8K in the area of broadcasting and Web content. New displays using organic light-emitting diodes (OLED) and quantum dot technology are beginning to spread in the area of display devices. Even audio is no exception, with 22.2 multi-channel surround audio scheduled to be adopted in the next generation of broadcasting. In these areas, there is an increasing need for protection of copyrighted content and demand for an increase in added value. In our Visual Solution BU, we are developing hardware, such as system LSIs, that integrate various interfaces, codec processing, AV signal processing, encoding, and decoding processing for reproducing into a single chip to playback, display, and protect this evolving content. In addition, we are also involved in the development of applications and proprietary software for smart TVs, BD players, and signage equipment using these technologies. We provide comprehensive solutions that support our customers in terms of both hardware and software.

By Creating Impressive Experience with Our Technologies, We Provide Customers with Strong Support in Product Development



POINT 01

8K TV Solutions that Offer Amazing Beauty and Life-like Reproduction

Expressing beautiful video images that are increasing in resolution by the change from full HD (2K) to 4K, and then to 8K requires many times more signal processing than before. We are realizing video expression that is optimized for large, higher resolution, and high brightness display panels by taking advantage of our wider bandwidth of video-signal-processing, data-bandwidth-compression, color tone correction, tone correction, and noise reduction technologies. We produce a space with lifelike sensations by combining various audio technologies.



POINT 02

4K/2K Global TV Solution Compatible with the Latest Online Distribution Services

Conventional content viewing was based mainly on broadcasting and broadcast standards have evolved over the last 10 years. The age of 4K has resulted in a transition to content viewing through the Internet which has come to play a very important role, and the online distribution standards have evolved over the last few years. In order to deliver the power and sensation of online content, we provide comprehensive solutions with combined hardware and software that are compatible with codec and security methods used in the latest online content distribution standards.



POINT 03

Blu-ray/STB Solutions Compatible with Diversified Viewing Styles

The evolution of playback devices, recording media, and content resulted in the need for the support of diversifying viewing styles. For example, new methods for playback, recording, and distribution, such as time-shifted viewing of full-channel recording and redistribution of content via networks, are needed. The solutions we provide will realize Blu-ray players and recorders, STB equipment, and other products that are fun and convenient to use. To this end, our products integrate the decoder, encoder, storage, and network functions that support various codecs including H.265 (HEVC) compactly.



POINT 04

Acoustics Software IP that Delivers Amazing Sense of Presence and Rich User Experience

Multi-channel audio, such as 22.2ch, is increasingly adopted by surround sound systems. On the other hand, TV speakers have become thinner and smaller, which at the same time makes it difficult to reproduce powerful sound. In order to address this issue with acoustic software IP-based technologies, such as the low frequency enhancement technology for reproducing powerful bass sound even with small diameter speakers and the 3D surround sound technology for localizing sound images at various positions only with the front speakers, we will upgrade the reproduction of sounds from a wide range of products, including TVs, mobile devices, amusement equipment, and in-vehicle equipment.



POINT 05

Our Global Support System Based in Japan, China, and Taiwan

We will deliver solutions developed by our business unit located in Kyoto in Japan to the world. At various locations in the world, including the newly established Istanbul site and other sites in China, Taiwan, and other countries in the Asia region, we have been establishing a development and support system based in customers' development and manufacturing sites.



IoT & Graphics Solution BU

Achieving a Rich and Novel User Experience through Smart Networks

With the development of information technology, the linkage between people's lives and digital devices or cloud services has become more and more important. In these circumstances, the IoT & Graphics Solution BU has combined an integrated human machine interface (HMI) solution for automobiles and graphic solution technology for 360° wrap-around view system and HMI authoring tools with high-performance sensors, ultra-high-speed wireless communication technology, and cloud collaboration technology that the BU has developed through years of experience. Using the world's first, smallest, and most efficient technology, we will provide solutions that bring safety as well as exciting and thrilling new user experiences.

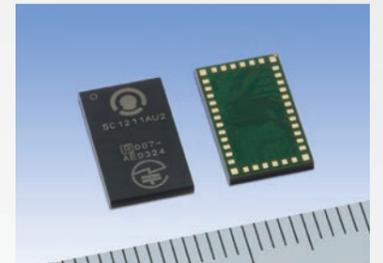
By Coordinating with Teams at Various Locations in the World, We Provide a World that Has Not Yet Been Experienced.



POINT 01

World's Smallest Class 24 GHz CMOS Electromagnetic Wave Sensor with Excellent Environmental Resistance

The world's smallest class 24 GHz CMOS wave sensor combining a transmitter with a built in frequency modulator and a highly sensitive receiver in one chip can measure not only the speed of movement of an object but also measure the distance to a stationary object in three sensing modes. Also, due to a mounted volume of 84 mm³ it is possible— in addition to detecting a person's presence—to measure their breathing and heart rates without coming in contact with them; a function that is only possible with a wave sensor.



POINT 02

“Integrated HMI System” Made Sophisticated by 3D and 2D Graphics

Video images displayed in an automotive displays are becoming more diversified and steadily increasing. Our “Integrated HMI System” combines a high performance graphics SoC and chipset which makes it possible to integrate multiple displays. Not only are the HMI images that are generated optimized for each display, but also the overall cost can be reduced by dividing the display system into functional units.



POINT 03

360° Wraparound View System Provides Freely Viewed Synthesized Images

OMNIVIEW is a full-surround stereoscopic monitor system that synthesizes and displays the images from four cameras installed on the vehicle in four directions using a 3D model. It is possible for the view of synthesized images to be freely transformed in real time due to our proprietary SoC and development support software, thus assisting not only car parking, but also perimeter monitoring while driving a vehicle.



POINT 04

Authoring Tool CGI Studio that Enhances the Customer's Development Efficiency

The authoring tool CGI Studio was developed as a co-design tool for graphic designers and embedded system designers when developing HMI systems. A common interface has been prepared for Windows® and embedded system environments. Since designs created in PCs can be used "as is" in embedded system environments, it is possible to greatly increase development efficiency by minimizing designs iterations between graphic designers and system designers.



Imaging Solution BU

From Camera Market to Image Sensing Field, "Milbeaut®" ASSP provides the World's Highest Image Quality

The Imaging Solution BU carries out the development, manufacture, and sales of the "Milbeaut®" ASSP for a wide range of camera systems in the industrial imaging field, including prosumer DSLRs, smart phones, and surveillance cameras. In recent years, we have also been providing imaging solutions that can be applied to IoT through flying cameras, sensing cameras, and image sensing, going beyond the conventional market. The development of our unique image processing algorithm started along with the advent of digital cameras, where we have always provided the top image quality with the latest video codec features and various interfaces in advance to the market needs. While this is an ASSP, we also provide services including platforms and firmware development, sales, and image quality consultant, offering One-Stop Solution from start to end.

"Milbeaut®" is Evolving and Growing as It Meets Diverse Imaging Markets



POINT 01

Captures and Converts Whole Sensor Data into a Beautiful Image, Realizing the Subject

Our image processing technology achieves image quality that can satisfy camera manufacturers for prosumers, while at the same time realizes high image quality in camera systems with optical limitations, such as mobile phone cameras. In addition, we have incorporated advanced computational functions such as facial/object detection and differentiation by computer vision, scene detection, and haze removal for more accurate image creation.



POINT 02

"Milbeaut®" Achieves Important and Advanced Image Processing at High Speed and Low Power Consumption

One of the features of "Milbeaut®" is the provision of solutions meeting a wide range of customer needs in addition to superior products. The core and complex image processing part of "Milbeaut®" is executed by an image pipeline and a dedicated hardware-wired engine, allowing system to be high-speed, high-performance, yet with low power consumption.



POINT 03

We Provide Various Imaging Solutions that Go beyond the Conventional Market

Based on the world's highest class image processing technology cultivated through long years of experience, the Imaging Solution BU provides various imaging solutions for extensive fields including action cameras, sensing cameras, and on-vehicle cameras, as well as other products in the conventional camera market. These solutions can also be applied to IoT with image sensing, in which demands are increasing recently.

POINT 04

Total Support From Hardware to Software to Image Quality Tuning Meeting Various Kinds of Image Quality Needs

Along with the general ASSP solution capable of realizing world's top class image quality, we provide custom solutions, using "Milbeaut®" as a platform, that suit customer needs and further deepen their core competence. We also develop business models applying our IP technology to customer product development. To meet various needs for image quality, we provide total support from hardware to software to image quality tuning.



POINT 05

Contributing to Smooth Application Development by Providing a Wide Range of Software Platforms as SDK

"Milbeaut®" supports a wide range of software platforms from lighter operational real time OS (RTOS), such as uITRON™, to Android™, which covers rich range of APIs. We also provide Software Development Kit (SDK) compatible with various applications, supporting customers for smoother application development.



Custom SoC Solution BU

Providing Custom SoC Solutions that Bring New Value to Next-Generation Products

With the increasing functionality and higher performance of SoCs, it is becoming more and more difficult to develop SoCs in a short turnaround time. Over the past 40 years, Socionext's Custom SoC Solution BU has earned the reputation of able to quickly develop custom SoCs that meet the needs of our customers. Using the techniques of system architecture design, development support services, software platform, and customization using our ASSPs as the core, we develop SoCs that are "one step ahead" at the system level. We believe our role is to propose and provide custom SoC solutions that create new value in next generation products.

As a Custom SoC provider with more than 40 years of experience, we meet a wide range of needs from consumer to industrial applications.



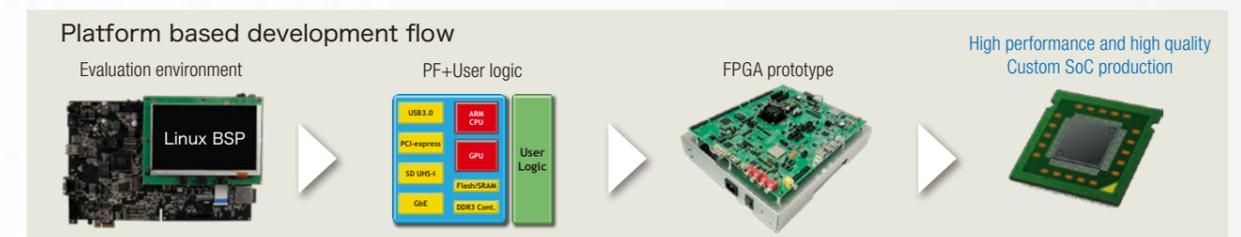
POINT 01 We Provide Solutions for Image-Processing Equipment

Image-processing applications, such as TVs, cameras, and documents, need to be customized according to customer specifications. With our wealth of diverse IP, and with our ASSP as a core, we shorten the turnaround time for custom SoC development, enabling our customers' products to be shipped faster.



POINT 02 Platform-Based Development Method Realizes a High Quality Design in a Short Development Period

Our Custom SoC Solution BU supports the design of the optimal architecture, and provides a verified SoC platform. In so doing, we realize the development of high-performance and high-quality SoC in a short turnaround time.



POINT 03 Power-Saving Sub-System Improves Performance and Reduces Power Consumption

As the performance of SoC increases due to its large scale and high speed, power consumption increases as well. Our power-saving sub-system meets the needs of higher performance and reduced power consumption.

POINT 04 Providing Solutions for Increasingly Sophisticated IoT Equipment

IoT equipment requires high security, small size, and a sensing capability. In order to meet security requirements, we provide high-security, tamper-resistance chips that incorporate our proprietary structure. To meet the size and sensing requirements, we develop ultra-compact, low-power-consumption, and high-bit-rate AD converters, and multiple medical IoT solutions, including a mobile ultrasound imaging solution.



POINT 05 Providing Custom SoC that Brings New Value to Products with Partners All Over the World

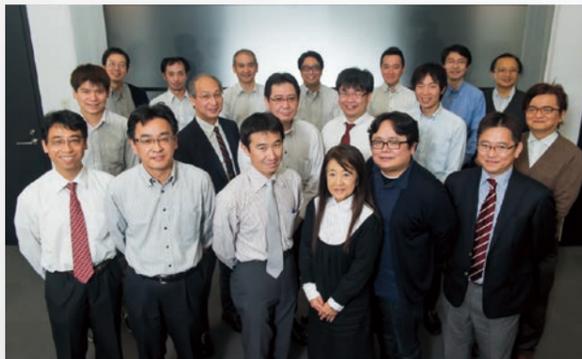
We are developing IP, silicon wafers, and packages jointly with various partners all over the world in order to bring new value products and meet customer requirements.

Network Solution BU

Most Advanced Network SoC Solution Meeting Growing Network Demand

Due to the proliferation of smart devices, expansion of cloud computing, increase in Internet distribution of 4K videos, and other technologies and services, network capacity demand is continuing to grow rapidly. Coherent optical data transmission at rates of 100Gbps and higher is the key underlying technology supporting capacity growth in core, Metro and data communications fiber-optic networks. Socionext Network Solution BU provides IP and base technology for the most advanced digital coherent SoCs being deployed today. While 100G optical networks are rapidly expanding, it is essential to carry out research and development for the practical realization of next-generation 400G and 1T (Tera) optical networks. Leveraging over 30 years' of experience developing custom SoCs, combined with specialist high-speed analogue, mixed-signal and digital design, Socionext Network Solution BU continues to provide leading edge IP helping our customers to design systems for current and future networks.

Contributing to the Realization of Ultra-High Speed Optical Networks Utilizing Our Teams in Germany, in the UK and in Japan



POINT 01

Differentiated and Highly Reliable Mixed-Signal IP Technology

Socionext Network Solution BU provides all of the necessary analogue IP blocks, digital cells, memory blocks and standard interfaces to help systems developers implement their digital coherent DSP designs as full SoCs. Key IP hard-macros include high-performance, low-power, high-speed ADCs, DACs and SerDes to support systems using a variety of different modulation formats.



POINT 02

Seamless Scalability from 100G to 1T data rates

Our R&D teams provide the support to integrate our unique IPs to realize our customer's SoCs to scale from 100G to 400G and to 1T applications. At the same time we guide the optimal feature selection for a given power envelope and module form factor.

POINT 03

SoC Solutions Incorporating Socionext high-performance IP

By incorporating our advanced mixed-signal technology, particularly high performance, low power, ultra-high-speed CMOS ADC, DAC, and SerDes technologies, we meet customers' needs for custom solutions for many application areas. These range from long distance undersea data communication to medium distance intercity communication, short distance communication between data centers, and to communication within a data center. In addition, for short distance data center optical links, we provide our unique DMT-based 100G SoC featuring low power consumption and compact packaging.



POINT 04

Most Advanced Technology Realizing Large Scale, Small Size, and Low Power Consumption

Our SoC design services include full ASIC physical implementation, DFT, package design, device qualification and manufacturing. With almost 10 years of experience in delivering digital coherent SoCs for our customers in the process technology nodes of 65nm, 40nm, 28nm and soon 16nm, Socionext Network Solution BU has a strong track record in helping customers to deliver the right performance, power and flexibility in their systems.

POINT 05

From Concept to Implementation, Evaluation, and Mass Production: Development and Support System All Over the World

The Network Solution BU has a worldwide development and support network. From definition of custom SoCs to their implementation, evaluation, and finally to mass production, our organization can support our customers in all aspects.



Enterprise Solution BU

Connecting People to People, and Things to Things Extracting the Maximum value of cloud computing

We have entered an age where every person is connected to every other person and every thing is connected to every other thing, due to the advance in information technology. Our Enterprise Solution BU aims to develop businesses by proposing and providing high performance solution. We build solutions, further developing and expanding the market with a focus on edge computing and connectivity. What the Enterprise Solution BU provides are high performance, low power SoC products and solutions essential for enterprise products, including servers, factory automation, and broadcasting equipment. We further enhance customers' products and services by extracting the maximum value in connectivity, morphing information into intelligence.

Our Top Priority is Ensuring Customer Satisfaction. We Continue Challenging Ourselves to Create World-leading Products



POINT 01

High-Performance and High-Quality SoC Solutions Leading the World with “匠(Takumi)”*

We have developed CPUs used in the world's highest performance super computers and their peripheral SoC products. Using our video codec technology, the Enterprise Solution BU has also successfully developed a real-time encoder with broadcast quality, compatible with the advanced H.265 (HEVC) format, on a single chip for the first time ever. We lead the world with “Takumi”. With master craftsmanship that achieves high design quality and high reliability, as a company we provide SoC products and solutions that are essential in the fields of cloud computing, edge computing, and industrial equipment, supporting the foundations of modern society.

* : Takumi(匠) is a Japanese word meaning “artisan”.



POINT 02

Applied Artificial Intelligence for connecting IoT devices

The artificial intelligence mechanism that the Enterprise Solution BU is aiming for morphs a great deal of information into intelligence. It is, so to speak, the ultimate codec: an IoT device that can grow by itself, using autonomous communication to learn. This technology, which connects IoT devices, including artificial intelligence, has the potential to connect devices into a strong and flexible system—something sought after by many companies.



POINT 03

“SynQuacer™” Cloud Solution that Makes System Performance the Top Priority

The increase in power consumption from processing larger data sets is becoming an issue in the cloud computing market. We are able to provide high-performance, application-specific server SoC products that are faster and consume less power by using CPU distribution and affinity optimization for IoT devices. Our “SynQuacer™” solution makes system performance the top priority.



POINT 04

Video Distribution and Professional AV Solutions Provide Image Quality and Technology that are Admired Worldwide

The Enterprise Solution BU's codec products and solutions are widely used in the contribution, creation, and delivery of broadcasting media. The products of Socionext, a recognized provider of excellent codecs, are also used for distributing video content in hotel buildings and facilities, audiovisual systems in schools and concert halls, recording images and transmitting them in medical facilities, control systems in public agencies, and so on, proving they are quality solutions.



POINT 05

We Contribute to the Area of Industrial Equipment with a Wealth of Experience and Advanced Technology

Higher performance, higher quality SoCs are in demand in the area of industrial equipment due to the increase in IoT usage. With our wealth of experience with industrial equipment products, we provide the best solutions based on a CPU platform by creating a synergy with SoC development technologies for super computers and high-performance servers.



Providing Optimum Quality to Customers through Comprehensive Management Systems

The products of Socionext are utilized in various fields and are playing very important roles in our customers' products. We build quality products that meet the varying QCD (Quality, Cost, and Delivery) needs of our customers. Additionally, through comprehensive management systems for the planning and design stages, we as a fables company choose perfect partner companies (contract manufacturers) in Japan and overseas according to the characteristics, functionality, and quality of products to be manufactured. Moreover, by leveraging our high-quality and reliable technology that has been developed in the global market and through strong cooperation with our partner companies (contract manufacturers), we provide optimum quality to our customers in a timely manner.

Quality assurance system

Selecting a foundry is a critical part of ensuring optimum quality. In Socionext, we coordinate with domestic and overseas foundry partners that have state-of-the-art technologies and have established an advanced quality assurance system in order to provide the best solutions to satisfy the diverse needs of our customers.



ISO9001 certification

ISO9001 is an international standard for quality management systems with the aim of improving product quality assurance systems and increasing customer satisfaction. We acquired ISO9001 certification. Furthermore, we have set up a system that can expand globally using the production lines of partner companies that have the ISO/TS16949 certification, which is standard in the automotive industry.



Aiming to Achieve a Sustainable and Rich, Low-Carbon Society

Socionext is aiming to become a company that contributes to a sustainable and rich, low-carbon society in harmony with local communities. Our commitment to address global environmental issues together with our customers and society started with each of our employees becoming environmentally conscious. Through the development and distribution of energy-saving and space-saving eco-friendly devices and solutions, we help reduce of the environmental impact of our customers' products.

Environmentally friendly products

Socionext is pursuing the design and development of products that are environmentally friendly while strictly complying with legal regulations. By developing low-power consumption products and providing products that correspond to the legal and regulatory environment of various countries, we are delivering peace of mind to our customers.

The products of Socionext and the packing and packaging materials comply with the EU REACH regulations*1, EU RoHS directive*2, China RoHS directive*3 and other laws and regulations (excluding exceptions for applying usage prohibition measures).

- * 1 : The regulations in the EU with the purpose of registering, evaluating, authorizing and restricting chemicals (Registration, Evaluation, Authorization and Restriction of Chemicals)
- * 2 : The directive that prohibits the use of specific hazardous substances in electronic and electrical equipment sold in the EU (Restriction of Hazardous Substances)
- * 3 : The directive that prohibits the use of specific hazardous substances in electronic and electrical equipment sold in the People's Republic of China (Regulatory ordinance preventing pollution from the production of electronic and information products)

ISO14001 certification

ISO14001 is an international standard for environmental management system(EMS), outlined with the aim of improving environmental performance of an organization. Socionext is continuing its activities to reduce impacts to the environment based on the requirements of ISO14001.



Our Worldwide Support Organization Provides High Quality Service to Customers

● Global HQ
 ● Business Unit HQ
 ● Group Company HQ
 ○ Design, Development and Sales Offices

■ JAPAN



■ ASIA



■ EUROPE



■ NORTH AMERICA



We Support Reliability and Innovation through our Group's Comprehensive Strength

Company Outline

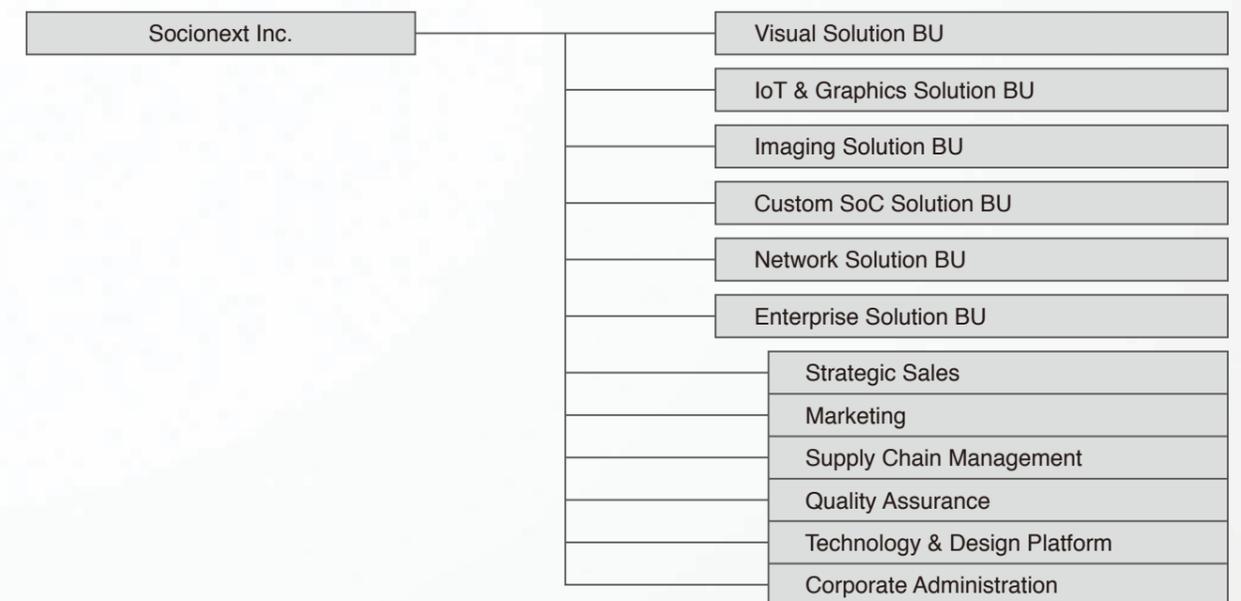
Company name	: Socionext Inc.
Headquarters	: Nomura Shin-Yokohama Bldg., 2-10-23 Shin-Yokohama, Kohoku-ku, Yokohama, Kanagawa, 222-0033, Japan
Capital	: 30.2 billion yen
Start of business	: March 1, 2015
Business description	: Design, development, and sales of SoC and solutions/services centering on SoC.
Employees	: About 2,800
Shareholders	: Development Bank of Japan, Fujitsu Limited, Panasonic Corporation

Executives	: Masahiro Koezuka	Representative Director & Chairman
	Amane Inoue	Representative Director & President
	Kenji Ushida	Board Director
	Yoshifumi Okamoto	Board Director
	Tom Miyake	Board Director
	Noriaki Kubo	Board Director
	Yoshinao Ikeda	Board Director
	Morimasa Ikemoto	Board Director
	Yoshiyuki Miyabe	Board Director
	Minoru Kobayashi	Audit & Supervisory Board Member
	Tomio Kudo	Audit & Supervisory Board Member

Business Execution

Masahiro Koezuka	Chairman & CEO
Amane Inoue	President & COO
Kenji Ushida	Corporate Executive Vice President & CFO
Yoshifumi Okamoto	Corporate Executive Vice President & CTO
Tom Miyake	Corporate Executive Vice President
Koichi Otsuki	Corporate Executive Vice President
Mitsugu Naito	Corporate Senior Vice President
Noriaki Kubo	Corporate Senior Vice President
Koichi Yamashita	Corporate Senior Vice President
Dirk Weinsziehr	Corporate Senior Vice President

Organization Chart



Socionext Group

- ▶ Socionext Inc.
- ▶ Socionext America Inc.
- ▶ Socionext Europe GmbH
- ▶ Socionext Embedded Software Austria GmbH
- ▶ Socionext Korea Ltd.
- ▶ Socionext Technology (Shanghai) Co., Ltd.
- ▶ Socionext Technology Pacific Asia Ltd.
- ▶ Socionext Taiwan Inc.
- ▶ Socionext Global Platform Inc.