Silicon Island Kyushu
Kyushu’s Supply Chain in Semiconductor Industry

Kyushu Semiconductor & Electronics Technology Innovation Association
(Call us SIIQ)

Web Search
SIIQ
http://www.siiq.jp/
Semiconductor Industry in Kyushu

Sony Semiconductor Corporation
- [A2, A3, A4, A5, A6], 2001
  - Bipolar ICs, MMICs, MOS ICs, CCD/CMOS Image sensors, H-LCDs, SRD
- [Chikugo Apollo Co., Ltd., Chikugo Plant (A5)] (1980)
  - Monolithic ICs, Transistors
- [Kumamoto]
  - Semiconductor elements

Kumamoto
- Mitsubishi Electric Corporation

Nagasaki
  - Development and design of system LSI
  - MOS IC, CMOS image sensor

Kumamoto
- Minami-ku, Kumamoto
  - Renesas Semiconductor Kyushu Yamaguchi Co., Ltd. [Kumamoto Kawai Factory [A3, A4]] (1969)
    - System LSI, Microcomputers (MPU)
  - TFT color LCD modules
  - Power devices/modules
- Tokyo Electron Kyushu Ltd., Koshi Plant [D1, D4] (1990)
  - Coater/developer, surface preparation system
- Nankan, Tamana-gun
  - Fuji Electric Co., Ltd., Kumamoto Plant [S1] (2006)
    - Film-type amorphous solar cell
- [Ozu, Kuchinom]
  - Teradyne K.K., Kumamoto [D1, D3] (1973)
    - Automation inspection equipment (linear mixed signal, CCD, logic)
  - CIGS thin-film solar cell
  - ICs/LiSi, EMS
- Tokyo Electron Kyushu Ltd., Ozu Plant [D1, D4] (1985)
  - Coater/developers for FPD

Kagoshima
- Satsumasendaima
  - KYOCERA Corporation, Kagoshima Sendai Plant [E6, E7] (1969)
    - Semiconductor parts, LCD color filters, Fine ceramics
- [Kumamoto]
  - ULVAC KYUSHU Corp. [D1, D2] (1981)
    - Vacuum devices for semiconductor/FPD manufacturing equipment
- [Kumamoto]
    - Bipolar IC, MOS logic, CCD/CMOS image elements, H-LCD, MMC, SRD

Capacity of Major Plants

<table>
<thead>
<tr>
<th>Plant</th>
<th>Capacity (Watt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asahi Kasei Microsystems Co., Ltd., Nobeoka Plant</td>
<td>6* α: 12K, 8* α: 12K</td>
</tr>
<tr>
<td>NJR FUKUOKA Co., Ltd.</td>
<td>5* α: 40K</td>
</tr>
<tr>
<td>Sony Semiconductor Corporation, Kumamoto TEC</td>
<td>12* α: 24K</td>
</tr>
<tr>
<td>Renesas Semiconductor Corporation, Kumamoto TEC</td>
<td>6* α: 10K, 8* α: 12K, 12* α: 12K</td>
</tr>
<tr>
<td>Toshiba Corporation, Semiconductor &amp; Storage Products Company, Oita Operation a</td>
<td>8* β: 47.5K, 12* β: 25K</td>
</tr>
<tr>
<td>Mitsubishi Electric Corporation, Power Device Works, Kumamoto Plant</td>
<td>6* α: 100K</td>
</tr>
<tr>
<td>Sony Kaguchoyizumi Semiconductors Inc.</td>
<td>6* α: 12K</td>
</tr>
<tr>
<td>LAPIS Semiconductors Miyazaki Co., Ltd.</td>
<td>5* α: 36K, 6* α: 60K</td>
</tr>
<tr>
<td>Renesas Semiconductor Kyushu Yamaguchi Co., Ltd, Kumamoto Kawai Factory</td>
<td>8* β: 60K</td>
</tr>
</tbody>
</table>

Structure of semiconductor related industry in Kyushu

Number of firms/offices and support organizations

<table>
<thead>
<tr>
<th>Supporting Organization</th>
<th>Fukuoka</th>
<th>Saga</th>
<th>Nagasaki</th>
<th>Kumamoto</th>
<th>Oita</th>
<th>Miyazaki</th>
<th>Kagoshima</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semiconductor manufacturing</td>
<td>78</td>
<td>4</td>
<td>6</td>
<td>32</td>
<td>30</td>
<td>10</td>
<td>20</td>
<td>180</td>
</tr>
<tr>
<td>FPD/Solar cell/OLED manufacturing</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Equipment</td>
<td>149</td>
<td>17</td>
<td>15</td>
<td>93</td>
<td>52</td>
<td>16</td>
<td>21</td>
<td>363</td>
</tr>
<tr>
<td>Materials</td>
<td>101</td>
<td>18</td>
<td>8</td>
<td>45</td>
<td>32</td>
<td>21</td>
<td>22</td>
<td>247</td>
</tr>
<tr>
<td>Electronic device/parts</td>
<td>109</td>
<td>15</td>
<td>17</td>
<td>24</td>
<td>21</td>
<td>20</td>
<td>15</td>
<td>172</td>
</tr>
<tr>
<td>Facilities</td>
<td>30</td>
<td>4</td>
<td>8</td>
<td>14</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>68</td>
</tr>
<tr>
<td>Software</td>
<td>22</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>38</td>
</tr>
<tr>
<td>Trading, System integration etc.</td>
<td>20</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Public research institution</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Public support institution</td>
<td>11</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>University</td>
<td>31</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>Research center related uni.</td>
<td>20</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>38</td>
</tr>
<tr>
<td>Collaboration center (industry-academia)</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Technology licensing office</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Intellectual property support</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
<td>17</td>
<td>15</td>
<td>93</td>
<td>52</td>
<td>16</td>
<td>21</td>
<td>363</td>
</tr>
</tbody>
</table>

Note) Each firm and organization have more than one business domain.

Function of semiconductor-related firms/offices

- Manufacturing: 77.9%
- Sales: 47.9%
- Procurement & Purchase: 40.6%
- R&D: 37.3%
- Customer Service: 23.5%
- Product Planning: 23.0%
(N=201, MA: Multiple answer)

Overseas Network

Overseas business

- No: 0%
- Direct: 17.0%
- Indirect (via trading firm): 3.4%
(N=202, MA:)

Overseas sales base

- No sales base: 50.0%
- Direct sales base: 25.9%
- Indirect sales base (via trading firm): 10.3%
(N=174, MA:)

Overseas manufacturing base

- No manufacturing base: 2.1%
- Direct manufacturing base: 17.0%
- Indirect manufacturing base (via trading firm): 3.4%
(N=166, MA:)

Location area of sales base

- China (central/west): 43.5%
- Taiwan: 40.3%
- Singapore: 38.7%
- North America: 37.1%
- South Korea: 24.2%
- China (south) Europe: 21.0%
- Others: 46.8%
(N=59, MA:)

Location area of manufacturing base

- China (central/west): 33.3%
- Taiwan: 48.5%
- Singapore: 24.2%
- South Korea: 21.2%
- Other Asia: 15.2%
- Malaysia: 12.1%
- Others: 33.3%
(N=33, MA:)
Semiconductor Products in Kyushu

**Discrete**
- Asahi Kasei Microdevices
- Chuo Denki Kogyo
- Denken
- HIJI HIGH-TECH
- ISAHAYA ELECTRONICS
- Ishii Tool & Engineering
- J-DEVICES
- Kasada Electronic Industry
- Kiyokaiden Industry
- LAPIS Semiconductor Miyazaki
- Mitsubishi Electric, Power Device Works
- NJI FUKUOKA
- OKUMA ELECTRONIC
- Renesas Kyushu Semiconductor
- Renesas Micro Systems, Kyushu Office
- Renesas Semiconductor Kyushu Yamaguchi
- ROHM Apollo
- SANTEC
- Shikino High-Tech, Kyushu Branch
- Shintec
- TOPPAN TECHNICAL DESIGN CENTER, Fukuoka Design Center
- Toshiba, Semiconductor & Storage Products Company, Oita Operations
- Yoshikawa RF Semicon

**Optoelectronics**
- Buzen Toshiba Electronics
- CADtech Japan
- Kagoshima Takasaki Electric Ind.
- Kowa Denki Sanayio
- Kyushu Denshi
- Nichia, K-PLANT
- OKUMA ELECTRONIC
- Toyota Gosei, Saga Plant
- Yoshikawa RF Semicon

**Memory**
- CADtech Japan
- Ishii Tool & Engineering
- J-DEVICES
- Kiyokaiden Industry
- LAPIS Semiconductor Miyazaki
- Logic Research
- NSCore
- OKUMA ELECTRONIC
- Rebools
- Renesas Micro Systems, Kyushu Office
- Renesas Semiconductor Kyushu Yamaguchi
- Saga Electronics, Saga Works
- TAKAKI-GIKEN

**Microcomputer**
- CADtech Japan
- Denken
- Ishii Tool & Engineering
- J-DEVICES
- Kiyokaiden Industry
- KYUSHU NISSEI DENKI
- LAPIS Semiconductor Miyazaki
- Logic Research
- OKUMA ELECTRONIC
- Renesas Kyushu Semiconductor
- Renesas Micro Systems, Kyushu Office
- Renesas Semiconductor Kyushu Yamaguchi
- Saga Electronics, Saga Works
- Shikino High-Tech, Kyushu Branch
- Toshiba, Semiconductor & Storage Products Company, Oita Operations
- Yoshikawa RF Semicon

**Logic**
- AKElectronics
- CADtech Japan
- Denken
- Hibikino System-Lab
- HIJI HIGH-TECH
- Hitachi Maxell
- J-DEVICES
- Kyokaiden Industry
- Otta Device Technology
- OKUMA ELECTRONIC
- Saga Electronics, Saga Works
- Shikino High-Tech, Kyushu Branch
- Shintec
- Sony LSI Design
- TAKAKI-GIKEN
- TOPPAN TECHNICAL DESIGN CENTER, Fukuoka Design Center
- Toshiba, Semiconductor & Storage Products Company, Oita Operations
- YOKOHAMA ARTNICS

**Sensor/Actuator**
- AKElectronics
- AKM TECHNOLOGY
- Asahi Kasei Microdevices
- CADtech Japan
- Chuo Denki Kogyo
- Denken
- ELIA
- HIJI HIGH-TECH
- Hitachi Maxell
- ISAHAYA ELECTRONICS
- J-DEVICES
- LAPIS Semiconductor Miyazaki
- Logic Research
- NJI FUKUOKA
- OKUMA ELECTRONIC
- Renesas Kyushu Semiconductor
- Renesas Micro Systems, Kyushu Office
- Renesas Semiconductor Kyushu Yamaguchi
- Saga Electronics, Saga Works
- Shikino High-Tech, Kyushu Branch
- Shintec
- Sony LSI Design
- Sony Semiconductor
- TAKAKI-GIKEN
- Texas Instruments Japan
- TOPPAN TECHNICAL DESIGN CENTER, Fukuoka Design Center
- Toshiba, Semiconductor & Storage Products Company, Oita Operations
Semiconductor Industry in Kyushu


Mask


Wafer

Semiconductor Industry in Kyushu

Wafer Process

1. **Fukuoka**
   - Nishio, Fukuoka
   - Biopolar IC/ Analog IC
   - Assembly/Inspection of IC

2. **Saga**
   - Takeo
   - GaN (blue LED)

3. **Nagasaki**
   - Ishaya
   - Sony Semiconductor Corporation, Saga Branch Office [A3.A4]
   - System LSI, Microprocessors (MPU)

4. **Kumamoto**
   - Minimuku, Kumamoto
   - System LSI, Microprocessors (MPU)

Equipment (Front-end)

1. **Fukuoka**
   - Miyazaki, Fukuoka
   - Asahi Kokusai Technoeon Co., Ltd., VACUUM EQUIPMENT FACTORY [D1]
   - Semiconductor manufacturing equipment
   - Wakamatsu-ku, Kitakyushu
   - KASUYU-COLTD [D1.D6]
   - Laser cleanser, Water jet cleaning system, Sheet metal processing, Mechanical processing, Frame painting
   - Rigaku Corporation, Kyushu Branch [D1]
   - In-line X-ray metal film monitor, X-ray flim, color autocorrection, Thermal analysis, X-ray non-destructive inspection system
   - Dynamic bellows, Metal Orings, Vacum products
   - Sakamoto Electric MFG. Co., Ltd. [D1.D6]
   - Semiconductor manufacturing equipment units, Digital level
   - Cleaning equipment, Various vacuum components
   - Dynamic bellows, Metal Orings, Vacum products
   - Various devices
   - Ariake Giken Co. Ltd. [D1.D4]
   - Design fabrication of semiconductor/LCD manufacturing/equipment cleaning/semi cleaning
   - Cosmos System Inc. [D1.D6]
   - Vacuum equipment, Mirotron sputtering equipment, Various vacuum components
   - Sakamoto Electric MFG. Co., Ltd., Tsuyazaki Factory [D1.D6]
   - Semiconductor manufacturing equipment units, Digital level, Precise processing
   - Precision cleaning/reclaiming of vacuum equipment parts

Gases•Chemicals

1. **Fukuoka**
   - Wakamatsu-ku, Kitakyushu
   - HIRI Chemical Industry Co., Ltd., Kyushu Factory [A7.E3]
   - Inorganic gases for semiconductor processing, Inorganic gases
   - Kitakyushu Oxyton Co., Ltd. [E3]
   - Laser diode/nitrogen/oxygen, Gaseous oxygen
   - Ueki Corporation, Kitakyushu Offices [E3.J]
   - Semiconductor and microgas, Trading of parts and new materials
   - Kyushu Air Water Co., Ltd. Kitakyushu Branch [E3]
   - High purity gases (oxygen, nitrogen, argon, carbon dioxide)
   - Kyushu Aircide Co., Ltd.
   - AIR LIQUIDE Japan Ltd., Kitakyushu Territory [E3]
   - Oxygen, Nitrogen, Specialty material gases, Cylinder cabinet

2. **Saga**
   - Iwatani Industrial Gas Corpor, Saga Plant [E3]
   - Hydrogen gases
   - MITSUBISHI GAS CHEMICAL COMPANY, Inc., Saga Plant [E3]
   - Etching agent, Positive photo resist developer,
   - Polymer remover, Plastic packaging materials
   - Daido Air Products Electronics, Inc., Nagasaki Office [E3]
   - Bulk gases for semiconductor, Specialized material gases

3. **Nagasaki**
   -**Kumamoto**
   - Minimuku, Kumamoto
   - System LSI, Microprocessors (MPU)

-**Fukuoka**
   - Electronic grade (EL), Sputtering target material, Silicon/ quartz/silicon carbide products, Measuring system
   - TAIYO NIPPON SANSO CORPORATION, Kyushu Branch Office [D1.E3]
   - Material gases, Thin film deposition equipment for compound semiconductors (MOCVDs)
   - KANTO CHEMICAL CO.,INC., Omura Factory [E3]
   - High purity/high-functional chemicals for semiconductor/FPD manufacturing equipment
   - Semiconductor manufacturing equipment parts, Jigs/tools, Equipment for clean room
   - YASAMU KIKO CO. LTD., [D1]
   - Assembly of semiconductor manufacturing equipment

-**Saga**
   - Oita
   - Taiyo Nippon Sanso Corporation, Oita Factory [E3]
   - Semiconductor manufacturing equipment (vacuum, clean room)

-**Nagasaki**
   -**Kumamoto**
   - Minimuku, Kumamoto
   - System LSI, Microprocessors (MPU)

-**Fukuoka**
   - Electronic grade (EL), Sputtering target material, Silicon/ quartz/silicon carbide products, Measuring system
   - TAIYO NIPPON SANSO CORPORATION, Kyushu Branch Office [D1.E3]
   - Material gases, Thin film deposition equipment for compound semiconductors (MOCVDs)
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   - High purity/high-functional chemicals for semiconductor/FPD manufacturing equipment
   - Semiconductor manufacturing equipment parts, Jigs/tools, Equipment for clean room
   - YASAMU KIKO CO. LTD. [D1]
   - Assembly of semiconductor manufacturing equipment

-**Kumamoto**
   - Minimuku, Kumamoto
   - System LSI, Microprocessors (MPU)
Package & Test

1. Fukuoka
- Advantest Kyushu Systems Co., Ltd.
- Shikino High-Tech Co., Ltd., Kyushu Branch
- Aska Co., Ltd.
- KASUGA MANUFACTURING CO.,LTD.
- KYUSHU NITTO SEIKO CO.,LTD.
- KYUSHU FUJIMI SANGYO CO.,LTD.
- Shinryo Corporation, Wafer-Techno Business Works
- SOUSEI Engineering Ltd.

2. Saga
- Meiko Co., Ltd.
- Kyushu Electron Co., Ltd.
- KURE
- Fujiiseiko Co., Ltd.

3. Nagasaki
- Ishiaya
- IODC CORPORATION
- ICID, semiconductor elements

4. Kumamoto
- Nodaichi-Denshi Co., Ltd.
- NANIWA CORP.
- NODAICHICO LTD.
- SOUICHI ELECTRONICS CO.,LTD.
- YUKAWA CROWN CO., Ltd.

Back-end components

1. Fukuoka
- Kawasaki Steel Corporation
- Shinko Leadmakk Co.,Ltd.
- Watanabe Co., Ltd.
- Yoshikawa SEIMITSU Co., Ltd.
- KUROSAWAKU, Fukuoka
- KYOC Japan K.K.
- AKAI Co., Ltd.

2. Saga
- Meiko Co., Ltd.
- Kyushu Electron Co., Ltd.
- KURE
- Fujiiseiko Co., Ltd.

3. Nagasaki
- Ishiaya
- IODC CORPORATION
- ICID, semiconductor elements

4. Kumamoto
- Nodaichi-Denshi Co., Ltd.
- NANIWA CORP.
- NODAICHICO LTD.
- SOUICHI ELECTRONICS CO.,LTD.
- YUKAWA CROWN CO., Ltd.

Equipment (Back-end)

1. Fukuoka
- Kawasaki Steel Corporation
- Shinko Leadmakk Co.,Ltd.
- Watanabe Co., Ltd.
- Yoshikawa SEIMITSU Co., Ltd.
- KUROSAWAKU, Fukuoka
- KYOC Japan K.K.
- AKAI Co., Ltd.

2. Saga
- Meiko Co., Ltd.
- Kyushu Electron Co., Ltd.
- KURE
- Fujiiseiko Co., Ltd.

3. Nagasaki
- Ishiaya
- IODC CORPORATION
- ICID, semiconductor elements

4. Kumamoto
- Nodaichi-Denshi Co., Ltd.
- NANIWA CORP.
- NODAICHICO LTD.
- SOUICHI ELECTRONICS CO.,LTD.
- YUKAWA CROWN CO., Ltd.

Type of Production Process

- Semiconductor Manufacturing
  - A1: Design tool
  - A2: Design/Fieldbus business
  - A3: Wafer Process
  - A4: Wafer Test
  - A5: Packaging
  - A6: Final test
- ICID manufacturing
  - B: FPD/Solar cell manufacturing
- Equipment
  - D1: Wafer Process/Test
  - D2: Packaging
- OLED manufacturing
  - C: OLED manufacturing
SEMICONDUCTOR INDUSTRY IN KYUSHU

Chuo Denshi Kogyo Co., Ltd., Kumamoto Plant [A5.A6]
Semiconductor manufacturing equipment, Inspection, Design and assembly of PCB

Honda Co., Ltd. [A5.D1.F1.G.J]
Staff agency, Semiconductor manufacturing equipment, Measurement/evaluation service

Renesas Semiconductor Corporation [A5.A6]
Assembly/test running of ICs/LSiS, EMS of semiconductor (development/assembly/inspection)

Nakahashi Denshi Co., Ltd., Kishima Plant [A5.A6]
IC packaging/inspection

KYUSHU NISSEI DENKI CO., LTD. [A5.A6]
Assembly of microcomputers/LSiS/LSI, Laser welding

Microcomputers, System LSI

1 Oita

Oita

Agawa Mekki Inc. [A5.E7]
Electronic/semiconductoroinspection
test equipment

Otta Device Technology Co., Ltd. [A5]
Standard CMOS logic

Nakatsu

Renesas Semiconductor Kyushu Yamaguchi Co., Ltd., Oita Factory [A5]
Industrial MOS IC, Assembling LSI

Wafer test, Assembling, Final test, Visual inspection of bear chip

MICRONICS JAPAN CO., LTD., Kumamoto Technology Laboratory [E5]
Probe cards

Oita

Biet Co., Ltd. [D3.E5.F2]
Probe cards, PCB assembly, LCD/solar cell related equipment

Hibi-technology

SEIMITSU INDUSTRY CO., Ltd. [E4]
Grinding of dies prats for lead frames

Dyes of lead frame/connector, Semiconductor manufacturing equipment parts

KasumigaokaKagu Co., Ltd., Oita Factory [E4.F1]
Precision plastic components/dies for optical devices

Design, Plastic molding, 3D image visual inspection systems/equipment

Kiius, Kusu-gun

Fujita Chemical Industries Co., Ltd. [E4.D]
Parts of light electrical appliance, Precision plastic parts

6 Miyaizak

Miyaizak

KOUKEN Co., Ltd. [E4.F1]
ICs, Design/fabrication of die related equipment

Test, Jigs for test, Semiconductor manufacturing equipment parts

Nihonseki

Nichinan Seiki Co., Ltd. [E5]
Precise-pressing dies

7 Kagoshima

Kagoshima

HARADA-SIEIKOU Industrial Ltd. [E4]
Precision devices/jigs

Kumamoto

Inabata & Co., Ltd., Kyushu Office [E4.E7]
LCD/battery related materials, Encapsulation materials

Micro Electronics Service Corp., Kagoshima [E5]
Test, Jigs for test, Semiconductor manufacturing equipment parts

Osaka

Okuchi Electronics Co., Ltd. [E7]
Lead frames, Bonding wires, Sapphire substrate

Kumamoto

Sakurai SEI Co., Ltd. [D3]
TAB handler, IC carrier, semiconductor inspection equipment, Industrial robots

AMAUKA OPTICAL CO., LTD. [D2]
Optical glass prism

Kodai

Kumamoto IDM Corporation [D2.D3]
Semiconductor manufacturing equipment, IC testing handler

Ina Corporation, Kumamoto site [D3]
Spot light systems for image sensor inspection

H-1 System Inc. [D3.E5.B]
Semiconductor inspection equipment (Burn in boards, IC socket)

Tera Fit Inc. K.K., Kumamoto [D1.D3]
Development and manufacturing of automation equipment (linear mixed signal, C2D, Logic)

Y.A.C. Co., Ltd., Kumamoto facility (Semiconductor Div.) [D3]
Logic handler

IC visual inspection equipment, Carrier device

Japan UNIX Co., Ltd., Techno Center [D2]
R&D/technical support of soldering equipment (robots)

7 Oita

Oita

SHELL ELECTRONICS CO., LTD. [D2.F1.E2]
Semiconductor manufacturing equipment, Design and assembly of PCB

SUZUKI Co., Ltd. [D2.D6]
Semiconductor manufacturing/inspection equipment parts

Eto Machinery Manufacturing Co., Ltd. [D2.D6]
Precision liquidifying, Laser processing, Mechatronic equipment

Ishii Tool & Engineering Corporation [D2.E4]
Semiconductor manufacturing equipment (total packaging), Precision dies

Ishii Tool & Engineering Corporation, Oita Magari Plant [D2.E4]
Precision tool and die manufacturing equipment parts

Takachi Tools & Materials Co., Ltd. [D2.D3]
Taping machines, Visual inspection equipment

Inowave, Inc. [F3]
Picture inspection and processing machines

Todaka Corporation [D2.D3]
IC lead inspection/repair, IC test handler, marking

MICRONICS JAPAN CO., LTD., Oita Technology Laboratory [D3.E5]
Probe cards, Semiconductor/LCD inspection equipment

PLESON LLC [D3]
Development of semiconductor testing process/equipment, "Test in Tray"

Kumano Weighing Instrument Corporation, Kitsuiki Plant [D2]
IC manufacturing equipment

AK System Co., Ltd. [D2.D6.G]
Semiconductor manufacturing equipment

Hiji Miiyagawa-gunj

AK Electronics Co., Ltd. [D2.D3]
IC chip cutting, Sorting visual inspection, Taping

ME SYSTEM Co., LTD. [D3]
IC testing handler, inspection equipment of IC outside appearance

6 Miyazaki

Miyazaki

Miyakojima

IC test handler, IC inspection equipment, Die parts

7 Kagoshima

Kagoshima

Fujyama Corporation [D2.D8.G]
Automatic external test, Handling robots, Control system of semiconductor factory

NANOKOH CO., LTD. [D2.D4]
Assembly of semiconductor/solar cell/LCD manufacturing equipment

SEYUROYUKI KIKEN Co., Ltd. [D2]
Laser marking, multi functional tapping machines, Robots

TECHNO CROSS KYUSHU CO., LTD. [D2.E4]
Semiconductor manufacturing equipment, Preselection jig, Dies

Kaida Denki Co., Ltd. [D3]
Semiconductor inspection equipment, Test system for IC modules

D3 : Final test
D4 : FPD/Solar cell
D5 : OLED
D6 : General parts
D7 : Maintenance
D8 : Others
E4 : Packaging
E5 : Test
E6 : FPD/Solar cell/OLED
E7 : Others
F1 : Design/Manufacturing
F2 : Substrate/Mounting
F3 : Others
F4 : Facilities
G : Facilities
H : Software
I : Support
J : Staffing/Education
**Assembling • Electronic Devices • Software**

### Fukuoka
- Toshiba, Kitakyushu
- NIPPON STEEL & SUMIKIN CHEMICAL LTD., Kyushu Works [E5.F2]
- Components assembly, Standardized circuits for hybrid PCBs, OEL materials
- HOKOHSYA Co., Ltd. [F1.F2]
- High precision/density multiplier PCBs, Design/fabrication of CAD, Components assembling
- Yokahata, Kitakyushu
- Polyamide rigid base substrate, FPC, Semiconductor materials, Wafer foundry (Bipolar, CMOS)

### Hakata-ku, Fukuoka
- MARINTEC INC. [F1]
- Electronic equipment for marine vessel/fishing (e.g. LED fish lamp)
- HDO MANUFACTURING Co., Ltd. [F1.F2]
- Parts assembling, Technical support of electronic devices

### Tobata-ku, Kitakyushu
- OMRON Corporation, Fukuoka office [F1]
- Various Sensors, R/F systems, Programmable controllers, Safety components (curtains and switches)

### Minami-ku, Fukuoka
- Hirai Seimitsu Kogyo Corporation, Kyusyu
- Kyushu Keisokki Co., Ltd. [D3.F1.H]
- Nishimu Electronics Industries Co., Ltd. [F1.H]
- Iizuka
- JM Technology Inc. [H]
- Division [F1]
- Contracted development of hardware (LSI and software for communication devices)
- Design and development of burn-in equipment, production of printed circuit boards
- Nogata
- HC Technology Inc. [F2]
- PCBs, Power supplies, Design/fabrication of PCBs

### Nogata
- Myrtensity Corporation [F1.F2]
- Repaired boards (automotive parts/pcb)

### Hakata-ku, Fukuoka
- SUBACO Co., Ltd. [F1]
- High density/precision multilayer PCBs, Reclaimed silicon wafer

### Tobata-ku, Kitakyushu
- SHINSUI Techno Co., Ltd., Fukuoka Plant [F1]
- Humidity/dust sensor, IC boards, PCBs assembling
- Saga
- NAKAMURA ELECTRIC MFG. CO., LTD. [F1.F2]
- Electric/electronic control devices, Switch/measurement/applied electronic boards, Explosion-proof control devices
- Nishini Electronics Industries Co., Ltd., Saga Plant [F1]
- Devices for generation and transforming of electric power

### Nagasaki
- ACG Co., Ltd. [H]
- Kyushu R&D Center [H]
- Wide band receiver, Digital signal processing applied products, ASIC
- Choryo Software Co., Ltd. [F2]
- Design/fabrication of PCBs
- MHI Control Systems Co., Ltd. [Nagasaki, F2]
- PCBs, Plant control systems

### KYORITSU ELEX CO., LTD. [E7.F2]
- Electronic equipment for semiconductor manufacturing equipment modules (material handling, mechatronics, conveyance, Software, Manufacturing of hybrid ICs, Ceramic boards
- PLccELA Inc. [F1]
- Communication devices/information management
- Wabo Electronics Co., Ltd., Hakata Satellite Office [F1.F2]
- PCB assembling, High-density packaging
- CyberBeing, Inc. [H]
- LSIs, Designing firmware, Communication middleware

### Network Application Engineering Laboratories Ltd. [F1]
- Network management system, Human interface, Embedded software/tools
- SoftService Co., Ltd. [H]
- Embedded software development, Control system software, Human interface robots
- Kikonai, Fukuoka
- Yashimazumyo Co., Ltd. [D8.F1.I]
- System design, System processing equipment

### Motobu Co., Ltd. [F2]
- BGA rework/reball, BGA mounting for high-value-added semiconductor, Electronic equipment for semiconductor manufacturing equipment

### Sawara-ku, Fukuoka
- KOKUSHI ARTICOS LTD. [F1.F2]
- Design and development of MPU, Processing, design of FPG/PLD program devices, PCB artwork
- Fujitsu Kyushu Network Technologies Limited[F1]
- Development/design of hardware/firmware/software for communication devices

### STK Technology Co. Ltd. [F1.F2]
- ULSI, CAD, CAM, Design and burn-up of equipment, Contracted development of hardware (LSI and FPGA/software
- Omron Corporation, Nakasato, Fukuoka [F2]
- Kita Denshi Kougyou Co., Ltd. [F2]
- PCBs, Circuit/pattern design, Components assembling

### Nagoya
- OMRON Nohata Corporation [F1.F2]
- PCBs assembling, Electronic devices

### Takaoka
- MITSUMI ELECTRIC CO., LTD., Kyushu Business Development Center [F1]
- Precision coils, Microswitches, Power supplies
- Fukusaki Semicon Co., Ltd. [F1]
- System development, Network business

### JM Technology Inc. [H]
- Design of IT hardware/software, Design/ building of IT infrastructure

### Omakoto Electronics Corporation, Fukuoka
- Sales Office [F1.J]
- Electronic components, Semiconductor, Control parts, Measuring instruments
- Meidensha Corporation [A2.F2]
- Design/fabrication of electronic boards, PCBs, Development of system LSI

### Kaga
- Kanga
- Loyal Port Company Limited [F1]
- Contracted test of semiconductor devices, Measurement/inspection equipment, Control equipment for test equipment
- Kikusui, Kitakyushu
- Semiconductor/PPD manufacturing/inspection equipment, Design/development of embedded software, System design/development of integrated system

### KAGA COMPONENTS CO., LTD., Kumamoto Factory [F1]
- Power transformer, AC adapter, Switching power supplies

### Oita
- Oita
- Oita Canon Inc. Oita Plant [F1]
- Compact digital video cameras, Digital video camera
- STK Technology Co., Ltd., Ebisu Plant [D3.E5]
- Assembly of burn-in equipment/boards

### Nishimu Electronics Industries Co., Ltd., Oita Plant [F1]
- Optical/electronic control devices, Temperature/humidity sensors, Circuit boards, PCBs assembly

### Kuma
- OITA CANON MATERIALS INC., Kitzuki Plant [F1]
- Parts of duplicators/printers

### Komatsu
- Panasonic System Networks Kyushu Co., Ltd. [F1]
- Personal fax, Telephone line up, Hybrid mobile terminals

### Kuma
- Oita Canon Inc. HD/Aki Plant [F1]
- Digital single lens reflex camera, Compact digital video camera
- Kyushu, Fukuoka
- HIYAMAKE CO., LTD. [E1.F1]
- Semiconductor manufacturing equipment
- CHUKOH CHEMICAL INDUSTRIES, LTD., KYUSHU DENTSU CO., LTD. [E1.F1]
- ISAHAYA ELECTRONICS CORPORATION, Head office/Fukuoka [F1.F2]
- Wide band receiver, Digital signal processing applied products, ASIC

### ISAHAYA ELECTRONICS CORPORATION, Komaki Office [F1]
- Small signal transistors, Diodes, MOS-FET
- Audio-Labo Inc. [F1.F2]
- Amp, DC-AC inverter, Electrostatic eliminator
- Naganuma, Toyohara [F1]
- Control boards for semiconductor manufacturing equipment, Standard CPU, Bus board, Control communication boards
- Kyo Reiko Co., Ltd., Ishiaya Factory [F1]
- Adjusting devices for defense equipment

### Kuroyon, Kikuchi-gun
- KYUHEN Co., INC. [F1.F2]
- Control board for semiconductor manufacturing equipment, Assembly/fabrication/assembly of PCBs/FPGA, parts, Measuring instruments
- Loyal Port Corporation Limited [F1]
- Electronic parts, Semiconductors, Control machines

### Miyazaki
- Miyazaki
- Showa Device Co., Ltd. [F1.F2]
- Circuit units, Design/assembly of hybrid IC, Assembly of PDP modules
- NEC e-tec Inc. [F1]
- Ultra-high density assembling, Discrete assembling and analysis
- ECOM Co., Ltd. [F1.F2]
- Parts of mobile communication/communication/broadcast/general industry devices
- Shikah Electronics Industries Ltd., Miyazaki Factory [F2]
- Assembly/mounting of optical disc, Inspection equipment
- Miyage Precison Industry Ltd. [D8.E4.F1]
- Die parts, Precision machine processing
- Kio, Kyushu
- Miyazaki Daishin Canon Inc. [F1]
- Mounting/assembly of digital cameras
- Kyushu Daishinu Corp. [F1]
- Tuning fork quartz crystal resonators, Monolithic crystal filters

### Kagoshima
- Yamato Electronics Co., Ltd. [F1]
- Glasses for electronic parts
- Oita
- Okano Electronics Co., Ltd. [F1.F2]
- Pelletizer, Optical fiber assembly, Board mounting, Test assembly
- ASADA MELICOLTD., Kagoshima Plant [E6.F2]
- Stainless mesh for circuit printing

### IMT Co., Ltd. [F1.F2.H]
- Monitoring devices, Battery monitor, Portable power supply (by LiB), Applications of LiB
- CADTech Japan Co., Ltd. [F2]
- PCBs manufacturing
- ELM Co., Ltd. [D2.F1.H]
- Repair machines, Optical disc, Inspection equipment of IC character

### Category
- Semiconductor Manufacturing
- A1: Design tool
- A2: Design/Fabless business
- A3: Wafer Process
- A4: Wafer Test
- Packaging
- A6
- Final test
- Evaluation and analysis
- FPD/Solar cell manufacturing
- B: FPD/Solar cell manufacturing
- OLED manufacturing
- C: OLED manufacturing
- Equipment
- D1: Wafer Process/Test
- D2: Packaging

### Type of Production Process
- **Semiconductor Industry in Kyushu**
### Equipment Components

<table>
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<tr>
<th>Category</th>
<th>Description</th>
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| Semiconductor Manufacturing | - Processing of semiconductor manufacturing equipment/units of semiconductor manufacturing equipment<br>- Assemble semiconductor handling equipment/parts thereof<br>- Fabrication/assembling of semiconductor/LCD manufacturing equipment/parts thereof<br>- Sputtering equipment, ion bombarding equipment<br>- Precision module processing, Assemibling semiconductor/LCD manufacturing equipment<br>- Resinous precision parts for semiconductor fabrication equipment<br>- Effectively for the process evaluation of TEG wafer (chip)/board for evaluation of next generations assembly and packaging<br>- Various ceramic products<br>- Various ceramic products<br>- Various ceramic products<br>- Machining and grinding of semiconductor manufacturing equipment parts<br>- Laser cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools<br>- Metal cutting tools<br>- Plastic cutting tools
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| Onjo | Ikeda Technocorp Co., Ltd. [D6.E7] | Surface treatment with fluorine resin<br>- Metal grinding of semiconductor/LCD manufacturing equipment<br>- Metal grinding of semiconductor/LCD manufacturing equipment<br>- Metal grinding of semiconductor/LCD manufacturing equipment<br>- Precision module processing, Assembling units of semiconductor manufacturing equipments<br>- Precision module processing, Assembling units of semiconductor manufacturing equipments<br>- Precision module processing, Assembling units of semiconductor manufacturing equipments<br>- Precision module processing, Assembling units of semiconductor manufacturing equipments<br>- Precision module processing, Assembling units of semiconductor manufacturing equipments<br>- Precision module processing, Assembling units of semiconductor manufacturing equipments<br>- Precision module processing, Assembling units of semiconductor manufacturing equipments<br>- Precision module processing, Assembling units of semiconductor manufacturing equipments<br>- 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Facilities

1. Fukuoka
   Yokosuka, Kita-ku
   TAKADA CORPORATION (D1.G)
   Wafer cleaning/drying equipment, Clean room equipment, High purity gases, Chemical distribution pipes
   Hakata-ku, Fukuoka
   Seiko Electric Company Ltd., BF1.G
   High pressure water receiving/distribution panels, Power centers, Control systems for electric power/water supply, Power storage system
   SANKEN SETSUBI KOGYO CO., LTD., Kyushu Branch (G)
   Clean room
   Bear choir/surface mount technology (SMT) systems, PCB separator/surface cleaning equipment, Visual inspection equipment
   WATANABE ENGINEERING CORPORATION (G)
   Coil setting systems
   Suematsu KyuCo., Ltd., D6.G
   System/MECHANICAL/information/machinery equipment, Mechatronics products
   Seiko Service & Engineering Co., Ltd. (G)
   Security solutions
   Chuo-ku, Fukuoka
   Dan-Takuma Technologies Inc., Kyushu Branch (G)
   Clean devices

2. Saga
   Saga
   Move Corporation, Saga Plant (G)
   Draft for cleaning, Clean bench, Desiccator, Dust, Cabinet, Washing tank
   Imari
   NT Corporation (E7.G)
   Industrial washing enterprise, Software design, Maintenance of semiconductor manufacturing facilities
   Kowai, Kishimikun, Saga
   Saga Plant Industry Co., Ltd. (G)
   Development of automatic controlling hardware/software, Handling equipment in clean room, Maintenance of facilities

3. Nagasaki
   Ishihiya
   Kyushu CIC Laboratory Co., Ltd., West Kyushu Plant (G)
   Special cleaning of clean room wear, High accuracy washing of vessels, Sale of articles for clean room

Other Chemicals

1. Fukuoka
   Kouto, Kita-ku, Fukuoka
   TAIHOIKURU CO., LTD. (E7)
   Ceramics
   TOTO LTD. (E7)
   Various precision ceramics, Ceramic components for optical communication
   Yokosuka, Kita-ku, Fukuoka
   Kurosaki Harima Corporation (E7)
   Porous ceramics, Ceramic target materials for IC/PF process
   Hakata-ku, Fukuoka
   INOUE Co., Ltd. (E7)
   Sale of chemical and electronic materials
   Tokiwa West & Co., Ltd., Fukuoka (D7.F1.F)
   Semiconductors, Resistors/capacitors, PCBs, Relays, Transformers, Touch panel LCD Controllers
   Fukuden Shizai Co., Ltd. (E7.F1.F2)
   Semiconductor devices, Electronic/eddy current inspector
   Chuo-ku, Fukuoka
   Mitsui Chemicals, Inc., Fukuoka Branch (E3.E7)
   Sale of functional chemicals/resins/basic chemicals
   Omuta
   Mitsui Mining & Shelting Co., Ltd., Rare Metals
   Div. Miere Rare Metal Plant (E7)
   Grinding/cutting materials with cerium oxide, Tantalum oxide, Niobium oxide
   DENKI KAGAKU KOGYO K.K., Omuta Plant (E7.F2.E5)
   Fused silica, Silicon nitride, Aluminum nitride, Boron nitride, Ceramics boards, Phosphor materials for LED
   Chikusa
   NS Materials Corporation (E7)
   Development of nanophosphor for super luminescence LED
   Onjo
   Senju Metal Industry Co., Ltd., Fukuoka Sales Offices (D2.E7)
   Solders, Soldering fluxes, Soldering machinery/ peripheral equipment, Bearing/hydraulic machine parts
   Sus, Kasa-ku
   Hakata Kanamono Co., Ltd. (E7)
   Metal recycling material
   Onjo, Onogawa-ku
   WORKS Co., Ltd. (D6.E5.E7)
   Dies for semiconductor, lenses

2. Saga
   Asahi Glassplant Inc. (E7)
   Laboratory glass, Quartz glass for semiconductors/technical fibers, High vacuum molecular distillation/precision fractional distillation equipment
   Yoro
   OMRON RELAY & DEVICES Corporation (E7)
   Magnet relay
   Kyushu
   MINELLON CORPORATION, Ltd., Kumamoto Plant (E7)
   Plastic magazines/trays, Emboss carrier tape, Tape dispenser for TAB
   Ozu, Kikuchi-ku
   Otsu Tech Co., Ltd. (E7.F1)
   Metal cutting, Precision dies
   Shin-Etsu Quartz Products Co., Ltd., Kyushu Plant (E7)
   Quartz glasses for semiconductors
   Nishin, Kasa-ku
   Kyowa Limited, Kumamoto Factory (E7)
   Insulating materials
   Mitoku, Kumakomini-ku
   Koei Co., Ltd. (E7)
   Quartz glass products for semiconductor

3. Oita
   Oita
   Tokiwa West & Co., Ltd., Oita (D7.F1.F)
   Semiconductors, Resistors/capacitors, PCBs, Relays, Transformers, Touch panel LCD Controller
   Beppu
   OMRON TAIYO Co., Ltd. (E7)
   Semiconductors, Resistors/capacitors, PCBs, Relays, Transformers, Touch panel LCD Controller
   Beppu
   MIKURA BUSSAN Co., Ltd. (E7)
   Packaging materials
   Oita
   Tyoei Electric Co. Ltd., Oita Division (D2.E6.E7)
   Packaging materials (e.g. carrier tape)

4. Miyazaki
   Miyazaki
   MIKURA BUSSAN Co., Ltd. (E7)
   Grinding, Recycling abrasivens
   Nobeoka
   YOSHITAMA SURFACE FINISHING CO., LTD. (D6.E7)
   Planting (electroplate, electrosion, honing)
   Takamakura
   FUJI TITANIUM INDUSTRY Co., Ltd., Hyoga Plant (E7)
   Electronic ceramic materials (dielectric materials), High purity oxide
   Beppu
   KINSHU GOLD CO., LTD. (E7)
   Packaging materials

5. Kagoshima
   Kagoshima
   Tokiwa West & Co., Ltd., Kagoshima (D7.F1.F1)
   Semiconductors, Resistors/capacitors, PCBs, Relays, Transformers, Touch panel LCD Controller
   Nissui Electric Chemical Industry Co., Ltd. (E7)
   Surface treatment of metal/non metal
   Kagoshima
   NEMAX KAGOSHI CO., Ltd. (E7)
   Multilayer ceramic condensers, Ceramic filters, Multilayer PKG, Thin film PKG: Structural parts of equipment
   Kitakyushu
   KYOCERA Corporation, Kagoshima Koubu Plant (E7)
   Multilayer ceramic condensers, Ceramic filters, Multilayer PKG, Thin film PKG: Structural parts of equipment
   Nishin, Kasa-ku
   YOSHITAMA SURFACE FINISHING CO., LTD., Myia-no-jo Division (D6.E7)
   Planting (hard chrome, electroless nickel)
   Beppu
   TKX FINE POLISH Corporation, Kyushu Plant (E7)
   Polishing of the sapphire substrate
   Beppu
   YAKUSHIMA DENKO CO., LTD., Yakushima Division (E7)
   Silicon carbide

Omura
Knowledge Management Technology Co., Ltd. (G)
Maintenance and management of semiconductor manufacturing facilities, Wafer recycle, Test wafer, Expendable supplies for clean room

Iwayoshi Ism Co., Ltd. (D1.D2.G)
Parts of rotary machine/cold machine/land turbine

Shiniwa Controls Co., Ltd., Kyushu Plant (G)
Precision temperature control system, Automatic control devices, Air purifier for local area in clean room, Cooling system

Kumamoto
Semiconductor manufacturing/inspection equipment, Design of digital/analog circuit

Ozu, Kikuchi-ku
TECHNOFLEX CORPORATION, Kumamoto Factory/Clean Device Factory (G)
Flexible tube

Kanseki Co., Ltd., Kumamoto Office (G)
Design of equipment of electronics industry/ automation/labor saving

Oita
Adachi Chemical Plants Co., Ltd. (G)
Pipes/peripheral devices for IC factories

SunCeramics Corporation (E7)
Special glass jigs for IC factories, Ultra precise cleaning and reproduction of them, Oxygen concentration equipment (PSA)

Kumaisi
Oita Parkerizing Co. Ltd. (D2.D6.E7)
Precise coating of resin casting parts/ pressed part

Miyazaki
MIKURA BUSSAN Co., Ltd. (E7)
Grinding, Recycling abrasivens

Nobeoka
YOSHITAMA SURFACE FINISHING CO., LTD. (D6.E7)
Planting (electroplate, electrosion, honing)

Beppu
FUJI TITANIUM INDUSTRY Co., Ltd., Hyoga Plant (E7)
Electronic ceramic materials (dielectric materials), High purity oxide

Beppu
KINSHU GOLD CO., LTD. (E7)
Packing materials (e.g. carrier tape)

Kagoshima
Kagoshima
Tokiwa West & Co., Ltd., Kagoshima (D7.F1.F1)
Semiconductors, Resistors/capacitors, PCBs, Relays, Transformers, Touch panel LCD Controller

Kumamoto
Nissui Electric Chemical Industry Co., Ltd. (E7)
Surface treatment of metal/non metal

Kagoshima
NEMAX KAGOSHI CO., Ltd. (E7)
Multilayer ceramic condensers, Ceramic filters, Multilayer PKG, Thin film PKG: Structural parts of equipment

Kyushu
KYOCERA Corporation, Kagoshima Koubu Plant (E7)
Multilayer ceramic condensers, Ceramic filters, Multilayer PKG, Thin film PKG: Structural parts of equipment

Kitakyushu
YOSHITAMA SURFACE FINISHING CO., LTD., Myia-no-jo Division (D6.E7)
Planting (hard chrome, electroless nickel)

Beppu
TKX FINE POLISH Corporation, Kyushu Plant (E7)
Polishing of the sapphire substrate

Kumamoto
YAKUSHIMA DENKO CO., LTD., Yakushima Division (E7)
Silicon carbide
**Engine/powertrain control**

ECU, ECU injector
- KYODERA, Kagoshima Kokubu Plant (KAGOSHIMA)
- IPM (Intelligent Power Module) for HV (Hybrid Vehicle)
- SUUNA, Fukuoka Plant (FUKUOKA)
- Power module substrate for HV
  - DENKI KAGAKU KOGYO Omuta Plant (FUKUOKA)
- Energy saving power device for HV
  - Mitsubishi Electric, Power Device Works, Kumamoto Plant (KUMAMOTO)
- Engine control ECU, Body control ECU
  - LARIS SEMICONDUCTOR MIYAZAKI (MIYAZAKI)
  - Renesas Semiconductor Kyushu Yamaguchi (KUMAMOTO)
  - Renesas Semiconductor Kyushu Yamaguchi Oita Factory (OITA)
  - Renesas Micro Systems, Kyushu Office (KUMAMOTO)

**Packaging of IC for car**

- Mitsubishi Electric, Power Device Works, Kumamoto Plant (KUMAMOTO)
- High-capacity DC cut-off relays for car
  - Mitsubishi Heavy Industries, Nagasaki Shipyard & Machinery Works (NAGASAKI)
- High-voltage power IC for headlight
  - Saga Electronics, Saga Works (SAGA)
- Stop lamp
  - Buzen Toshiba Electronics (FUKUOKA)

**Software development**

Development of software for car
- CATS Embedded Software Laboratory (FUKUOKA)
- DENSO TECHNO (FUKUOKA)

**Interior/exterior communication**

- L/N for short range loader, FET
- Chuo Denshi Kogyo (KUMAMOTO)
- CMOS image sensor for image recognition
  - Chuo Denshi Kogyo (KUMAMOTO)
- High capacity DC cut-off relays for car
  - OMRON RELAY & DEVICES (KUMAMOTO)
- Power device, Sensing device, Man machine interface device etc.
  - New Japan Radio, Kitakyushu Design Center (FUKUOKA)
  - HIL HIGH-TECH CO.,LTD. (OITA)
- Ceramic multilayer package, Surface mount package for electric parts
  - KYODERA, Kagoshima Sendai Plant (KAGOSHIMA)

**Interior communication LSI (CAN&LIN)**

- Renesas Semiconductor Kyushu Yamaguchi (KUMAMOTO)
- Renesas Semiconductor Kyushu Yamaguchi, Oita Factory (OITA)
- Renesas Micro Systems, Kyushu Office (KUMAMOTO)

**Instrument panel, AV system, Facility**

Spiritual guidance
- Futaba Imari (SAGA)
- TFT-LCD driver IC, Speech synthesis IC, VFD driver IC, OLED driver IC
  - LARIS Semiconductor Miyazaki (MIYAZAKI)
- High luminance LED for instrument panel
  - Toyoda Gosei, Saga Plant (SAGA)
  - Buzen Toshiba Electronics (FUKUOKA)
- Video switch IC for general purpose
  - ROHM Apollo (FUKUOKA)
- Car audio
  - Shinteki Electronics, Miyakonojo Factory (MIYAZAKI)
- Car navigation system, LCD panel for inner console panel
  - Melco Display Technology (KUMAMOTO)

**Assembling/testing of discrete semiconductor**

- ISAHAYA ELECTRONICS (NAGASAKI)
- LSI for car AV/car navigation system
  - Asahi Kasei Microdevices (MIYAZAKI)
  - LARIS Semiconductor Miyazaki (MIYAZAKI)
- Analog LSI for car air-conditioner
  - Toshiba, Semiconductor & Storage Products Company, Oita Operations (OITA)
- ECU, Meter, Graphic display device
  - UMC ELECTRONICS MIYAZAKI WORKS (MIYAZAKI)

**Safety, Drive assistance**

ABS, Airbag control LSI
- Renesas Kyushu Semiconductor (KUMAMOTO)
- SIC power device
  - ROHM Apollo (FUKUOKA)
- Airbag/brake system LSI
  - KYEC Japan (FUKUOKA)
  - HIL HIGH-TECH (OITA)
- Airbag system LSI
  - Takata Kyushu (SAGA)
  - L/N for short range loader, FET
  - Chuo Denshi Kogyo (KUMAMOTO)
- Sensor controller
  - LARIS Semiconductor Miyazaki Design Center (MIYAZAKI)
- Drive assist image recognition system
  - Renesas Semiconductor Kyushu Yamaguchi (KUMAMOTO)
- Power seat
  - Asain Kyushu (KUMAMOTO)
- Power device
  - Mitsubishi Electric, Power Device Works, Kumamoto Plant (KUMAMOTO)
- MOS image sensor for image recognition
  - ENG (FUKUOKA)
- Three axis accelerometer (acceleration, angle of inclination, vibration)
  - LARIS Semiconductor Miyazaki Design Center (MIYAZAKI)
- Cruise control analog IC, Tire pressure detection IC, ABS, Airbag control IC
  - Toshiba, Semiconductor & Storage Products Company, Oita Operations (OITA)
- Crash-avoidance system LSI
  - Renesas Micro Systems Kyushu Office (KUMAMOTO)

**Others**

Packaging/testing of LSI for car
- ISAHAYA ELECTRONICS (NAGASAKI)
- Saga Electronics Saga Works (SAGA)
- J-DEVICES (OITA)
- HIL HIGH-TECH (OITA)
- LARIS Semiconductor Miyazaki (MIYAZAKI)
- Renesas Kyushu Semiconductor (KUMAMOTO)
- Renesas Semiconductor Kyushu Yamaguchi, Oita Factory (OITA)
- Renesas Semiconductor Kyushu Yamaguchi, Kumamoto Nishiki Factory (KUMAMOTO)

**Assembly (number of cars assembled; FY2011)**

NISSAN MOTOR KYUSHU (Fukuoka): 460K
- SERENA, X-TRAIL, TEANA, DUALIS, MURANO, RAFFESTA, ROUGE

NISSAN SHATAI KYUSHU (Fukuoka): 300K
- HIGHLANDER, HARRIER, SAI, LEXUS IS, LEXUS ES, LEXUS RX, LEXUS HS, LEXUS CT

TOYOTA MOTOR KYUSHU (Fukuoka): 460K
- ELGRAND, PATROL, INFINITI QX56

DAIHATSU MOTOR KYUSHU (Oita): 420K
- Mira, Mira e:S, Mira Cocoa, MOVE Conte, TANTO E xe, ATRAI WAGON, HIJET CARGO, HIJET TRUCK, and OEM manufacturing for TOYOTA/SUBARU
**Photovoltaic Solar cell**
- AICOT-equipped power conditioner
  - OMRON Aso (KUMAMOTO)
- CIGS solar cell
  - Solar Frontier Miyazaki Plant One/Miyazaki Plant Two/Kunitomi Plant (MIYAZAKI)
  - Honda Soltec (KUMAMOTO)
- DC-DC converter
  - SAHAYA ELECTRONICS (NAGASAKI)
  - OOKUMA ELECTRONIC (KUMAMOTO)
- MPPT control
  - SAHAYA ELECTRONICS (NAGASAKI)
- Fine carbon
  - TOKAI CARBON, Tanoura Plant (KUMAMOTO)

**Storage**
- DC-DC converter
  - SAHAYA ELECTRONICS (NAGASAKI)
- Manganese oxide
  - TOSOH HYUGA (MIYAZAKI)
- Cathode material for Li-ion rechargeable battery
  - INCO, Minamata Factory (KUMAMOTO)
- Electricity storage system for house
  - Seiko Electric (FUKUOKA)

**Wind power generation**
- IGBT driver
  - SAHAYA ELECTRONICS (NAGASAKI)
- Wind power generation system
  - HANO MANUFACTURING (FUKUOKA)
- Wind power generation plant
  - Mitsubishi Heavy Industries, Nagasaki Shipyard & Machinery Works (NAGASAKI)

**Power conditioner**
- IGBT driver
  - SAHAYA ELECTRONICS (NAGASAKI)
- Si/SiC power module
  - Mitsubishi Electric, Power Device Works (FUKUOKA)
- Si/SiC power module, IGBT module for power conditioner
  - Mitsubishi Electric, Power Device Works, Kumamoto Plant (KUMAMOTO)
- Inverter
  - HANO MANUFACTURING (FUKUOKA)
  - YASKAWA Electric (FUKUOKA)
- Inverter, Photovoltaic power conditioner
  - DENKI KAGAKU KOGYO Omuta Plant (FUKUOKA)
- Ceramic substrate for solar cell/wind power generation equipment
  - Togami Electric Mfg. (SAGA)
- High voltage switch, Control equipment
  - Togami Electric Mfg. (SAGA)
- Photovoltaic power conditioner
  - OMRON Aso (KUMAMOTO)
- IGBT module for power conversion equipment
  - Mitsubishi Electric, Power Device Works (FUKUOKA)
  - Mitsubishi Electric, Power Device Works, Kumamoto Plant (KUMAMOTO)

**Maintenance, Inspection equipment**
- Cell tester
  - Denken (OITA)
  - Togami Electric Mfg. (SAGA)
- Inspection of photovoltaic system
  - Oita Device Technology (OITA)
  - System JD (FUKUOKA)
### Mobile Device

#### Mobile Phone, Tablet PC

<table>
<thead>
<tr>
<th>Control LSI</th>
<th>RF/Baseband LSI</th>
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<tbody>
<tr>
<td>Asahi Kasei Microdevices (MIYAZAKI)</td>
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<tr>
<td>Application processor</td>
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<tr>
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<tr>
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<td>Logic device for mobile device</td>
<td>Logic Research (FUKUOKA)</td>
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<tr>
<td>Sound generator LSI</td>
<td>Asahi Kasei Microdevices (MIYAZAKI)</td>
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<td>Logic Research (FUKUOKA)</td>
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#### Material, Substrate

**Application liquid for display surface processing**
- IGC Catalytics and Chemicals (FUKUOKA)
- NAGASAKI CANON (NAGASAKI)
- Oita Canon, Oita Factory (OITA)

**Ferrite sheet, Sheet antenna**
- Panasonic System Networks Kyushu, Miyazaki (MIYAZAKI)
- Shin-tec (FUKUOKA)

**Multilayer ceramic condenser (MLCC)**
- KIGER, Kajihata Kubota Plant/Kagoshima Sandai Plant (KAGOSHI)

**Isotropic graphite materials**
- TOKA CARBON, Tanoura Plant (KUMAMOTO)

**Application liquid for inter-wire insulation film formation**
- IGC Catalytics and Chemicals (FUKUOKA)

#### Digital Camera/Video

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#### Display

**LED for LCD backlight**
- Toyoda Gosei, Saga Plant (SAGA)
- LAPIS Semiconductor, Miyazaki Design Center (MIYAZAKI)

**TFT driver IC**
- Canon, Oita Plant (OITA)

**Oita Canon, Oita Factory (OITA)**

**Nagasaki Canon (NAGASAKI)**

**Asahi Kasei Microdevices (MIYAZAKI)**

**Logic Research (FUKUOKA)**

**Shintec (FUKUOKA)**

**Toppan Technical Design Center (FUKUOKA)**

**Logic Research (FUKUOKA)**

**Nichia K-PLANT (KAGOSHI)**

**Kagoshima Takatsuki Electric Ind. (KAGOSHI)**

**Toyoda Gosei Saga Plant (SAGA)**

**Oita Canon, Oita Plant (OITA)**

**JNC, Minamata Factory (KUMAMOTO)**

**Omuta Denshi Kougyou (FUKUOKA)**

**FUJIFILM Kyushu (KUMAMOTO)**

**MITANI MICRONICS KYUSHU (SAGA)**

**Advanced Photomask for LCD color filter**
- MITAN MICRONICS KYUSHU (SAGA)
- TAC film
- FUJIFILM Kyushu (KUMAMOTO)
- PVA film
- The Nippon Synthetic Chemical Industry, Kumamoto Plant (KUMAMOTO)

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- PVA film
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Home Electronics

### Game player
- Control LSI
  - Cell Broadband Engine, Image processing LSI
    - Sony Semiconductor, Nagasaki TEC (NAGASAKI)
  - Cell processor
    - Sony Semiconductor, Oita TEC (OITA)
  - IC for DVD pick up
    - KYEC Japan (FUKUOKA)
  - Toshiba Semiconductor & Storage Products Company, Oita Operations (OITA)
- LSI for game player
  - Yoshikawa RF Semicon (MIYAZAKI)
  - Testing of control system
    - J-DEVICES, Usuki Center (OITA)
- Assembling/testing of discrete semiconductor
  - ISAHAYA ELECTRONICS (NAGASAKI)

### Lighting, Display
- LED, LED light bulb
  - Accelerate Device (KAGOSHIMA)
  - Ceramic substrate (LED mount substrate)
    - DENKI KAGAKU KOGYO, Omuta Plant (FUKUOKA)
  - Assembling/testing of discrete semiconductor
    - ISAHAYA ELECTRONICS (NAGASAKI)
  - OLED aging equipment
    - DOKUMA ELECTRONIC (KUMAMOTO)
  - OLED material
    - NIPPON STEEL & SUMIKIN CHEMICAL, Kyushu Works (FUKUOKA)
- OLED inspection equipment
  - DOKUMA ELECTRONIC (KUMAMOTO)

### Digital TV
- Control LSI
  - IC assembling (microcomputer, analog)
    - Kumamoto Bosai Kogyo (KUMAMOTO)
  - Audio/video LSI
    - Asahi Kasel Microdevices (MIYAZAKI)
  - Logic Research (FUKUOKA)
  - Control LSI
    - J-DEVICES, Usuki Center (OITA)
  - System LSI (Cell processor)
    - KYEC Japan (FUKUOKA)
  - Hi-vision triple output video driver IC
    - ROHM Apollo (FUKUOKA)
  - Testing of microcomputers/SoC
    - STK Technology (OITA)
    - J-DEVICES, Usuki Center (OITA)
  - oKuchii Electronics (KUMAMOTO)
  - Very small-sized current output type analog illuminance sensor for LCD TV
    - ROHM Apollo (FUKUOKA)
  - LCD driver IC, ODEL IC, Gate driver
    - LAPIS Semiconductor Miyazaki (MIYAZAKI)
    - Logic Research (FUKUOKA)
  - Laser for recordable DVD
    - Mitsubishi Electric, Power Device Works (FUKUOKA)
  - High-end HDMI switch IC, HDMI buffer IC
    - ROHM Apollo (FUKUOKA)
  - Digital terrestrial/hi-vision television broadcasting receiver LSI
    - Renesas Semiconductor Kyushu Yamaguchi (KUMAMOTO)

### Display Panel
- FPD material, Special coating film for ultrawide VA
  - FUJIFILM Kyushu (KUMAMOTO)
- Color LCD display
  - Mitsubishi Display Technology (KUMAMOTO)
- LCD display with touch panel
  - KYOCERA, Kajijhashima-Kohyo Plant (KAGOSHIMA)
- LCD display
  - JNC, Minamata Factory (KUMAMOTO)

### Panel related LSI
- Bumping for LCD driver
  - SUN ELECTRONICS (KUMAMOTO)
  - Logic Research (FUKUOKA)

### Driver IC for large-sized LCD
- Sony Semiconductor, Kagoshima TEC (KAGOSHIMA)
  - Toppan Technical Design Center (FUKUOKA)
  - HIJ HIGH-TECH (OITA)
  - LAPIS Semiconductor Miyazaki (MIYAZAKI)
  - Logic Research (FUKUOKA)
  - LCD for rear-projection TV
    - FUJIFILM Kyushu (KUMAMOTO)

### Lighting, Display
- LED, LED light bulb
  - Accelerate Device (KAGOSHIMA)
  - Ceramic substrate (LED mount substrate)
    - DENKI KAGAKU KOGYO, Omuta Plant (FUKUOKA)
  - Assembling/testing of discrete semiconductor
    - ISAHAYA ELECTRONICS (NAGASAKI)
  - OLED aging equipment
    - DOKUMA ELECTRONIC (KUMAMOTO)
  - OLED material
    - NIPPON STEEL & SUMIKIN CHEMICAL, Kyushu Works (FUKUOKA)
  - OLED inspection equipment
    - DOKUMA ELECTRONIC (KUMAMOTO)
  - OLED light panel
    - EL Techno (KUMAMOTO)

### Power
- Power IC for LCD
  - Logic Research (FUKUOKA)
  - Assembling/testing of discrete semiconductor
    - ISAHAYA ELECTRONICS (NAGASAKI)
  - Bipolar IC
    - Mita Kinsoku Kogyo (FUKUOKA)

### Substrate, Material
- LCD material
  - JNC, Minamata Factory (KUMAMOTO)
- Application liquid for display surface processing
  - JGC Catalysts and Chemicals (FUKUOKA)
- PCB
  - Omuta Denshi Kogyo (FUKUOKA)
  - HANG MANUFACTURING (FUKUOKA)
- Materials for oriented film/passivation forming
  - JSIR Micro Kyushu (SAGA)
- Application liquid for inter-wire insulation film formation
  - JGC Catalysts and Chemicals (FUKUOKA)
Position of semiconductor production in Kyushu Economy (Kyushu’s Share in nationwide total)


Trade Balance of Kyushu

Sangyo Times, Inc., THE SEMICONDUCTOR INDUSTRY NEWS
Ministry of Economy, Trade, and Industry’s Economic Research Center, May 2012 Database of Semiconductor in Kyushu & Asia Countries.
* Based on the result of questionnaire to semiconductor related firms in Kyushu
* Each data is up-to-date as of November 2012.