Overview

- Established: 1997
- Revenue: US$600M (2017)
- Number of Employees: 1,940 (2017)
- Business Areas: System IC
- Technology: 90nm~0.35um
- Capacity: 116,000 wfs/month (200mm)
History

2017
- Renamed to DB HiTek (ex-Dongbu HiTek)
- Released new process; SJ MOSFET, MEMS Microphone, RF HRS CMOS

2016
- Released Advanced 0.18um BCDMOS process
- Achieved over 1 million Analog & Power wafer shipments

2014
- Released 0.13um BCDMOS & 0.11um Low Noise CMOS

2013
- Released 0.13um eFlash technology

2010
- Launched industry’s first 0.11um Mixed-Signal process

2008
- Launched industry’s first 0.18um BCDMOS process
- Developed LCD driver IC

2004
- Started CMOS foundry processing at the 0.13um node
- Released 0.18um CIS process

2001
- Started mass production in Fab2

2000
- Completed Fab2 construction

1997
- Established ‘Dongbu Electronics’
- Completed Fab1 construction, Started mass production in Fab1
## Facilities

<table>
<thead>
<tr>
<th></th>
<th>Fab1 (Bucheon)</th>
<th>Fab2 (Sangwoo)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td>64,000 wfs/month</td>
<td>52,000 wfs/month</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>0.35, 0.25, 0.18, 0.15um</td>
<td>0.18, 0.13, 0.11, 0.09um</td>
</tr>
<tr>
<td><strong>Key Process</strong></td>
<td>Analog/ Power, Mixed-Signal, High Voltage CMOS, SJ MOSFET</td>
<td>Analog/ Power, Mixed-Signal, CIS, eFlash, High Voltage CMOS, MEMS</td>
</tr>
<tr>
<td><strong>Wafer Size</strong></td>
<td>200mm (8-inch)</td>
<td>200mm (8-inch)</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Bucheon, Gyeonggi-do</td>
<td>Eumsung, Chungcheongbuk-do</td>
</tr>
</tbody>
</table>

![Facilities Diagram](image-url)
Continue to expand the capacity

(Unit: Kwfs/month)

2015: Fab1 55, Fab2 45
2016: Fab1 60, Fab2 52
2017: Fab1 64, Fab2 52
2018(P): Fab1 67, Fab2 52
Global Networks

Korea: Seoul (Brand), Bucheon (Fab1), Eumsung (Fab2)

Japan: Tokyo

China: Shanghai, Chengdu

Taiwan: Taipei

U.S.A: Santa Clara
Paradigm shift from ‘Knowledge and information society centered in smartphone’ to ‘Hyper-connected and super intelligent society in 4\textsuperscript{th} industrial revolution’

Knowledge and information society with smartphone

- 1970s, 3\textsuperscript{rd} industrial revolution (Knowledge and information)
- 1990s, PC commercialization
- Late 2000s, Smartphone commercialization

Hyper-connected and super intelligent society in 4\textsuperscript{th} industrial revolution

- 2010s, Appearance of new technology and applications with the wave of 4\textsuperscript{th} industrial revolution
- 2016, The first statement about 4\textsuperscript{th} industrial revolution in Davos Forum
**Business Strategy**

**Industry Environment**

### Global Semiconductor

- **CAGR (2017-2021): 3%**

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>429</td>
<td>461</td>
<td>461</td>
<td>476</td>
<td>489</td>
</tr>
</tbody>
</table>

(Unit: $B)

(Source: IHS '18.1Q)

### Foundry Market

- **CAGR (2017-2021): 9%**

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>61</td>
<td>66</td>
<td>71</td>
<td>78</td>
<td>84</td>
</tr>
</tbody>
</table>

(Unit: $B)

(Source: IHS '18.1Q)
DB HiTek support customers with valuable benefits

Technology
- Various Technology Platform
- Competitive Power & Sensor Technology
- Technology Innovation

Experience
- 20 years of Foundry Experience
- Partnership with Customers
- Track Record of Success

System
- Full PDK Support
- Competitive Cycle Time
- Superior Quality Control System

Process
- Improvement Processes
- Customer Relationship Management Processes
Key Process Portfolio

**Analog/Power**
- Tech Node: 0.13um ~ 0.35um
- Device Performance (Low Rdson)
- Higher BVdss & SOA

**CMOS Image Sensor**
- Tech Node: 90nm ~ 0.18um
- Low Power Process
- Low Noise, Low Dark Current, High Sensitivity Process

**Mixed-Signal**
- Tech Node: 90nm ~ 0.18um
- 90nm, 0.11um Low Noise, Low Leakage
- Available of RF Process (HRS)

**eFlash**
- Tech Node: 0.13um
- Low Power Process
- Various Macro IP Support

**High Voltage CMOS**
- Tech Node: 0.11um ~ 0.35um
- Low Power Process
- Competitiveness Cost Process

**New Technology**
- MEMS(Microphone, Heater)
- SJ MOSFET(600V/ 650V/ 700V)
- RF CMOS(HRS/ SOI)
- Microdisplay
Applications

- AUDIO
- AUTOMOTIVE
- TABLET
- WEARABLE
- SMARTPHONE
- DRONE
- AR/VR
- TV
- SECURITY
- AI SPEAKER
- DATA SERVER
- NOTEBOOK

**Analog/Power**
- PMIC
- Motor Driver IC
- Wireless Charger
- DC-DC Converter

**CIS**
- Mobile
- Security
- Medical
- Industrial

**Mixed-Signal**
- Audio Codec
- High Precision ADC
- Fingerprint Sensor
- WLAN
- CMOS PA
- Microdisplay

**High Voltage CMOS**
- UHD LDI
- OLED
- TDDI

**eFlash**
- TSC
- MCU
<table>
<thead>
<tr>
<th>Process</th>
<th>Available Technology</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>LV (≤40V)</td>
<td>AN180(Non-Epi)</td>
<td>BD180LV(Fab2)</td>
<td>AN180LC</td>
</tr>
<tr>
<td></td>
<td>BD180LV(Gen2)</td>
<td>BD180LVA(Gen3)</td>
<td>BD180LV(Gen4)</td>
</tr>
<tr>
<td></td>
<td>BD130LV(Gen1)</td>
<td>BD180LVA(Fab2)</td>
<td>BD130LV(Gen2)</td>
</tr>
<tr>
<td>MV (≤45V)</td>
<td>BD180MV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HV (≤100V)</td>
<td>BD350</td>
<td></td>
<td>BD180XH(Gen2)</td>
</tr>
<tr>
<td></td>
<td>BD180X</td>
<td>BD180XH</td>
<td>BD180SOI</td>
</tr>
<tr>
<td>UHV (Non-Epi)</td>
<td>UHV700</td>
<td></td>
<td>UHV700(Gen2)</td>
</tr>
</tbody>
</table>
## Technology Roadmap

<table>
<thead>
<tr>
<th>Process</th>
<th>Available Technology</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CIS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.18um - Stitching</td>
<td>IL18SH X-ray, Line sensor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IL13SI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.13/0.11um - Stitching</td>
<td>IL13SJ IL13SK</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ToF : PPD (Mobile)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ToF : SPAD (ADAS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Global Shutter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90nm</td>
<td>IL09SA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Technology Roadmap

<table>
<thead>
<tr>
<th>Process</th>
<th>Available Technology</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MS/RF</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.18um</td>
<td>MS180</td>
<td></td>
<td>MS18BE Low cost, Low noise</td>
</tr>
<tr>
<td></td>
<td>HP180 Low noise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.11um</td>
<td>TS11SB Low noise</td>
<td>RF11SB Low noise</td>
<td></td>
</tr>
<tr>
<td>RF Front End</td>
<td>TS11SB Low noise</td>
<td>RF11SB Low noise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TS11SC Low noise/ULL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RF11SC(HRS)</td>
<td>RF11SD &amp; SE(HRS)</td>
<td>RS13SA(SOI)</td>
</tr>
<tr>
<td>90nm</td>
<td>TS09SA Low noise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.13um</td>
<td>SE13SA</td>
<td>TE13SB</td>
<td></td>
</tr>
<tr>
<td>eFlash</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Technology Roadmap

<table>
<thead>
<tr>
<th>Process</th>
<th>Available Technology</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HV CMOS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>LD350</td>
<td></td>
<td>LD130</td>
</tr>
<tr>
<td></td>
<td>LD160</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>LD180</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD160</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD110</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile</td>
<td>LD160</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD110</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power Discrete</strong></td>
<td>SJ MOSFET(Gen2) 600V/650V/700V</td>
<td></td>
<td>SJ MOSFET(Gen3) 600V/650V</td>
</tr>
<tr>
<td><strong>MEMS</strong></td>
<td>Microphone(Gen1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microphone(Gen2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microphone(Gen3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microphone(Gen4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Micro Heater</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Design Environment

**Design Infra**
- SPICE Modeling
- PDK/iPDK
- ESD Solution
- IO/STD Cell Library
- Memory Compiler

**Application Specific IP**
- Non Volatile Memory (OTP, MTP)

**Reference Design Flow**
- Analog/ Mixed-Signal Design
- Digital Design
- EDA Solution

**Partner Companies**
- ARM
- Synopsys
- eSilicon
- eMemory
YourFab™ Service

YourFab™ Service Flow

Account Request ➔ NDA ➔ TM Review ➔ Account Open ➔ PDK Link IP & Library Link ➔ PDK Download IP & Library Download

Order To Shipping Service Flow

<table>
<thead>
<tr>
<th>Stage</th>
<th>PO</th>
<th>Tape Out/ Mask</th>
<th>Wafer Input</th>
<th>Production</th>
<th>WAT</th>
<th>Shipping</th>
</tr>
</thead>
<tbody>
<tr>
<td>YourFab™ Report</td>
<td>Order Summary</td>
<td>Wafer Input Status</td>
<td>Production</td>
<td>PCM Summary Report</td>
<td>Shipping Status</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

www.dbhitek.com | CORPORATE PRESENTATION | © 2018
# ShuttleChip™ Service

<table>
<thead>
<tr>
<th>Process</th>
<th>Tech</th>
<th>Fab</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Jan</strong></td>
</tr>
<tr>
<td>BCD (BEOL 0.15um, BD180LVA)</td>
<td>0.15um</td>
<td>FAB1</td>
<td>24</td>
</tr>
<tr>
<td>Analog / BCD/ Mixed-Signal (AN180 &amp; BD180 &amp; HP180 &amp; MS180)</td>
<td>0.18um</td>
<td></td>
<td>31</td>
</tr>
<tr>
<td>Mixed-Signal/ RF HRS</td>
<td>0.11um</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>CIS</td>
<td>0.11um</td>
<td>FAB2</td>
<td></td>
</tr>
<tr>
<td>Analog / BCD (BD130)</td>
<td>0.13um</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Mixed-Signal</td>
<td>0.15 ~ 0.18um</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The shuttle schedule might be changed or canceled if the minimum number of paid seat has not been filled.

* Schedule for some ShuttleChip may change due to unforeseen circumstances, so please contact your account manager for updated schedule.

* DB check will be cleared within 7 days before tape-out.
Certifications

**Quality Certification**
- ISO 9001
- IATF 16949

**ESH Certification**
- ISO 14001
- OHSAS 18001

**Security Certification**
- ISO 27001
THANK YOU