



The Global Specialty Foundry Leader

Looking Ahead 2020 and beyond

Oppenheimer 22nd Annual Technology, Internet & Communications Conference

August 2019



Safe Harbor

This presentation contains forward-looking statements within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995. These statements are based on management’s current expectations and beliefs and are subject to a number of risks, uncertainties and assumptions that could cause actual results to differ materially from those described in the forward-looking statements. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. For example, statements regarding expected (i) customer demand, (ii) utilization and cross utilization of our Fabs, (iii) growth in our end markets, (iv) market and technology trends, and (v) growth in revenues, cash flow, margins and net profits are all forward-looking statements. Actual results may differ materially from those projected or implied by such forward-looking statements due to various risks and uncertainties applicable to TowerJazz’s business as described in the reports filed by Tower Semiconductor Ltd. (“Tower”) with the Securities and Exchange Commission (the “SEC”) and the Israel Securities Authority (“ISA”), including the risks identified under the heading "Risk Factors" in Tower’s most recent filings on Forms 20-F and 6-K. No assurances can be given that any of the events anticipated by the forward-looking statements will transpire or occur, or if any of them do, what impact they will have on the results of operations or financial condition of TowerJazz.

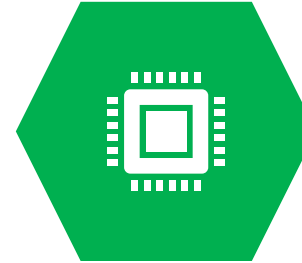
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TowerJazz: Value Creation



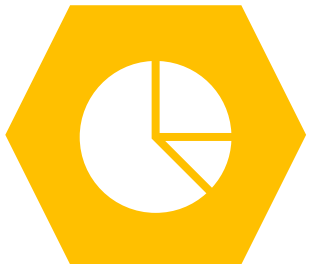
Analog Business and Financial Model

Strong financial position; focus on **profitable growth** with **margins expansion** and **cash generation** by driving **innovation within silicon** in proven technologies rather than solely by technological node shrinkage.



Leading Technology Offering

Provide wide range of **customized analog solutions** and **leading-edge specialty process technologies** including Radio Frequency (RF), High Performance Analog (HPA), Power Management, CMOS Image Sensors, Mixed-Signal/CMOS, and MEMS.



Strong Market Position

Providing **cutting edge market solutions**, aligned with **leading customers'** technology roadmaps in **growing markets** such as automotive, consumer, medical and industrial. Ensuring long-term business relationships.



Global Operations

High manufacturing capabilities with seven worldwide manufacturing facilities, providing **capacity assurance** and **operational flexibility**.

High Quality and Flexibility of Worldwide Manufacturing Capabilities



Migdal HaEmek, Israel

6", 150mm
Sensors, Power
1 μ m to 0.35 μ m



Migdal HaEmek, Israel

8", 200mm
Sensors, Power, RF SOI
0.18 μ m to 0.13 μ m



Newport Beach, USA

8", 200mm
SiGe, MEMS, RF SOI
0.5 μ m to 0.13 μ m



San Antonio, USA

8", 200mm
RF SOI, Power
0.18 μ m



Tonami, Japan

8", 200mm
Power
0.18 μ m



Arai, Japan

8", 200mm
Sensors, RF SOI
0.13 μ m to 0.11 μ m



Uozu, Japan

12", 300mm
Power, Sensors, RF SOI
65nm to 45nm

Financial Focus and Targets



Increase margins by:

- Improved mix and ASP increase
- Cross qualification and capacity flexibility



Reducing operating expenses:

- Minimization of central group activities, driving business unit ownership and ROI per employee/ project
- Optimizing cost structure
- Worldwide synergies and efficiency mindset



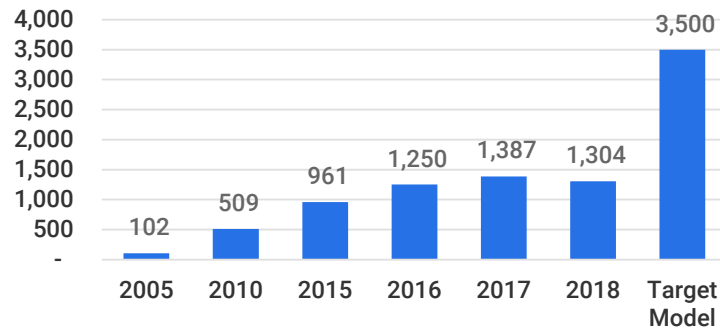
Free cash flow growth:

- Analog predominant CapEx re-use model
- New capability Cap-Ex to support additional growth drivers often shared with lead customer partners.

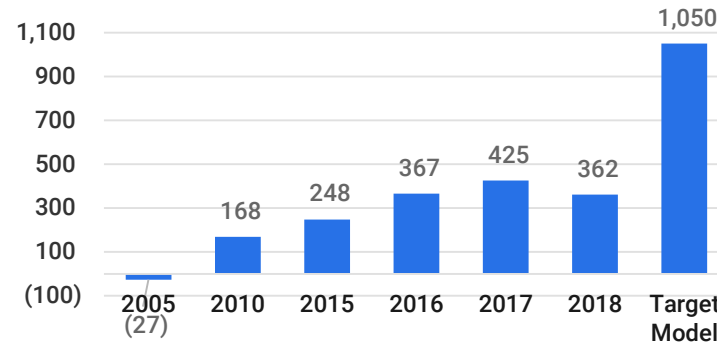
Long Term Target Model | Financial Performance (\$M)

Profitable growth and cash generation

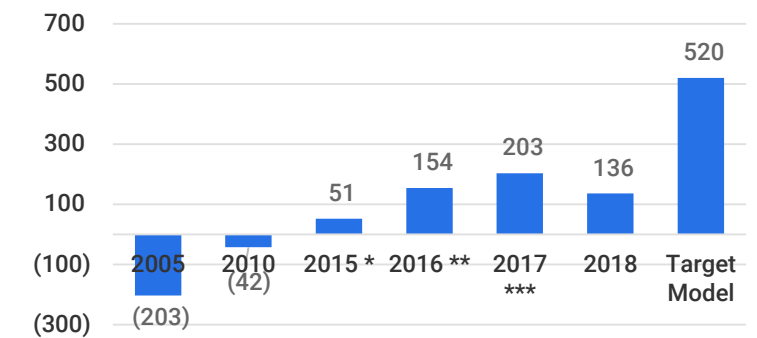
Revenues



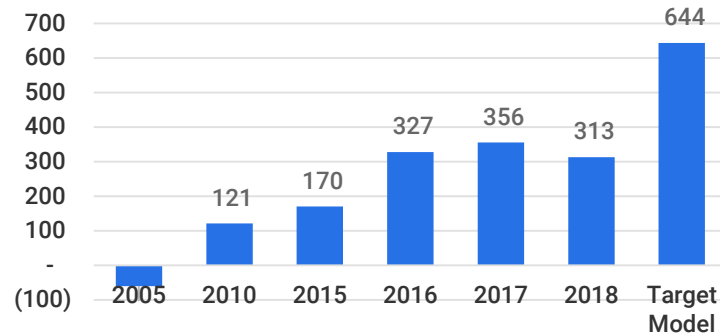
EBITDA



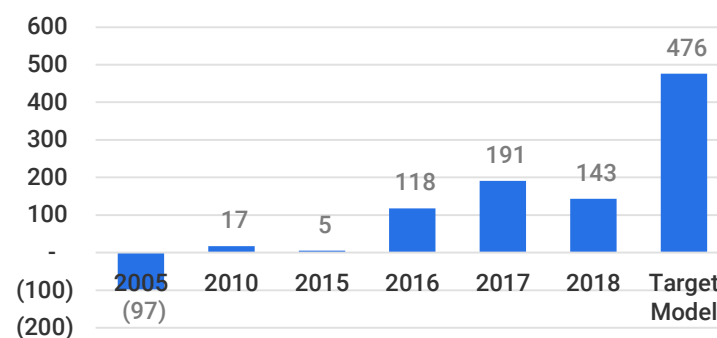
Net profit (loss)



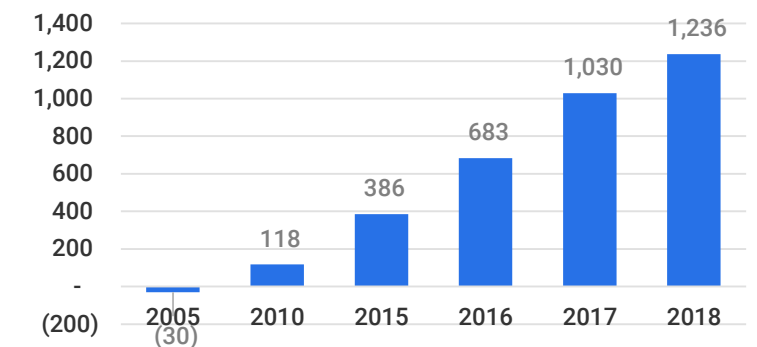
Cash from operations



FCF



SHAREHOLDERS' EQUITY



(*) 2015 Net profit as presented above excludes \$81M non-cash financing expenses related with the accelerated conversion of CD series F

(**) 2016 Net profit as presented above excludes \$50M Maxim acquisition gain.

(***) 2017 Net profit as presented above excludes \$82M income tax benefit resulted from Israeli deferred tax asset realization following valuation allowance release and \$13M income tax benefit related to U.S. tax reform.

Specialized Analog Solutions Answering Market Mega Trends

Wireless Everything

Seamless Connectivity



Green Everything

Energy Efficiency



Smart Everything

Interactive Smart Systems



Radio Frequency and High Precision Analog

~27%

of 2018 corporate revenues

Power

~34%

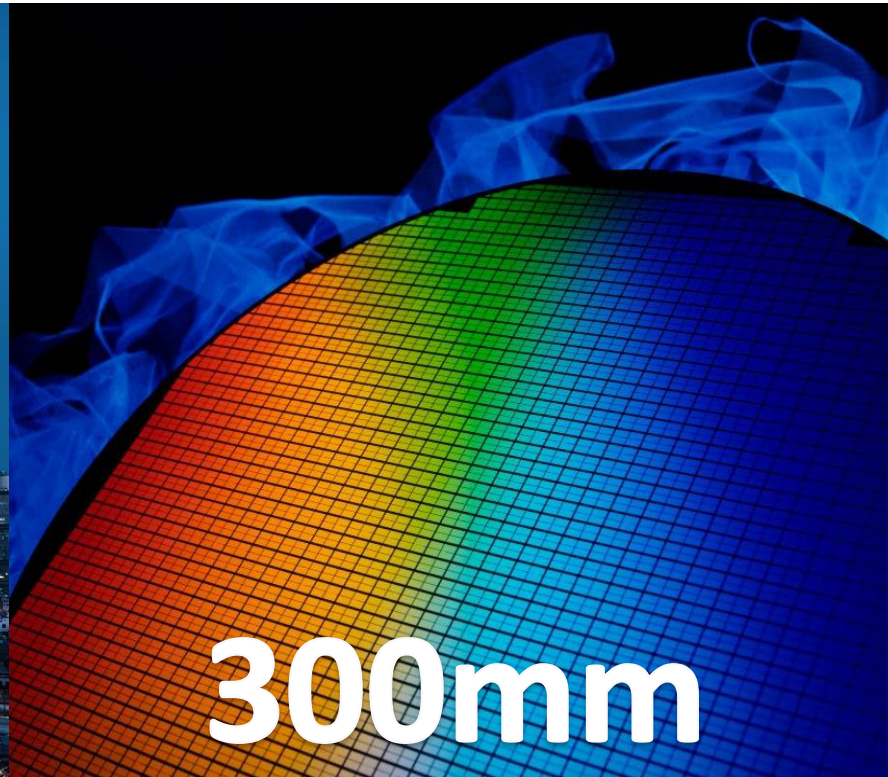
of 2018 corporate revenues

Sensors

~18%

of 2018 corporate revenues

Looking ahead – 2020 and beyond – main growth drivers



5G



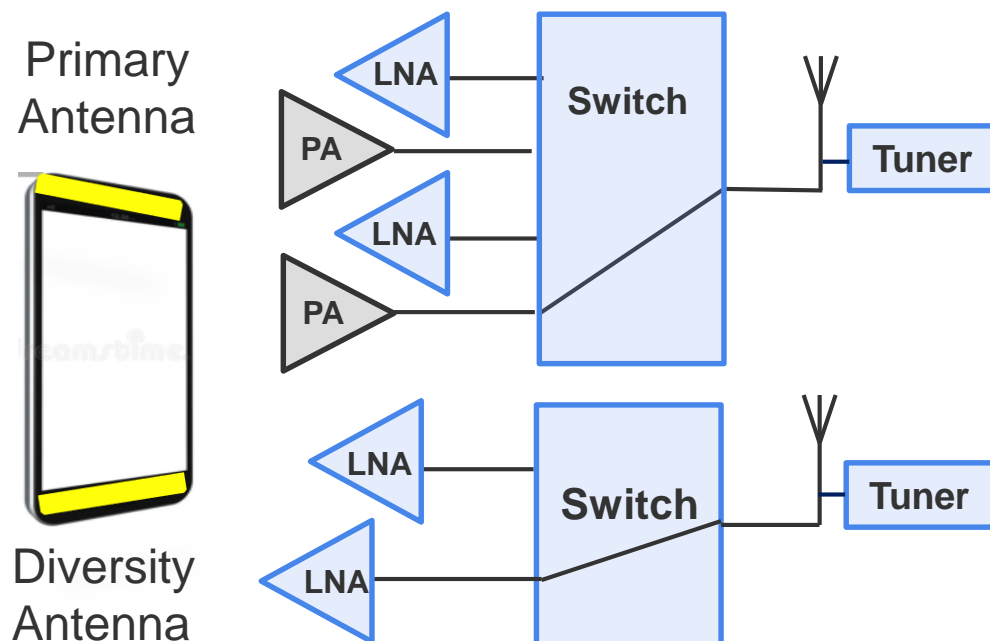
5G Implications to TowerJazz RF Market (Sub 6GHz)

- Industry expectation: 5G in ~25% of handsets by 2023 vs. <1% in 2019
- 5G offers higher data rates by use of more antennas and frequencies increasing RF content
 - More switches to select frequencies
 - More antenna tuners per phone
 - More low-noise amplifiers (one per antenna)

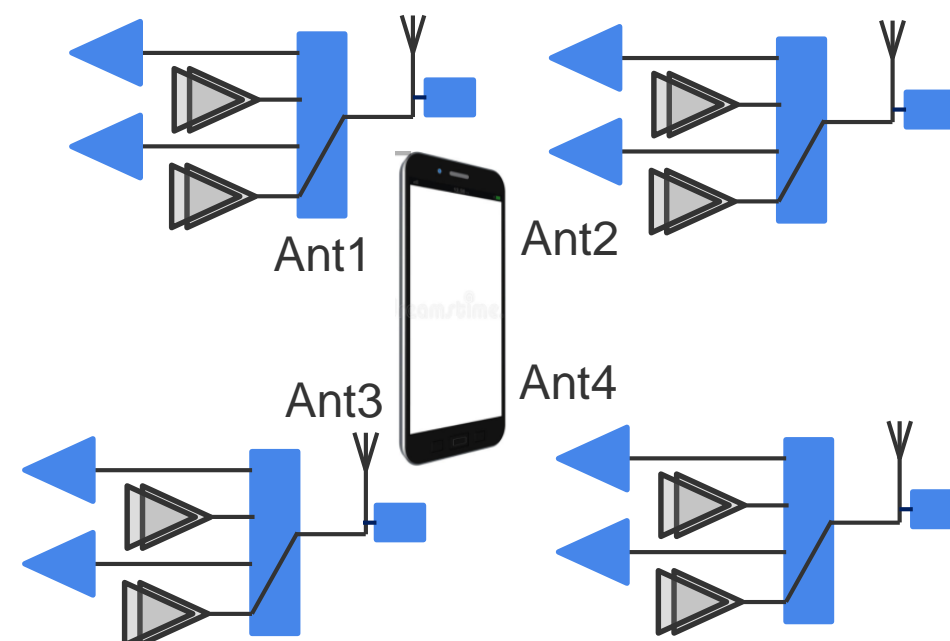
Built in **TowerJazz RF SOI**

Built in **TowerJazz RF SOI or RF MEMS**

Built in **TowerJazz RF SOI or SiGe**

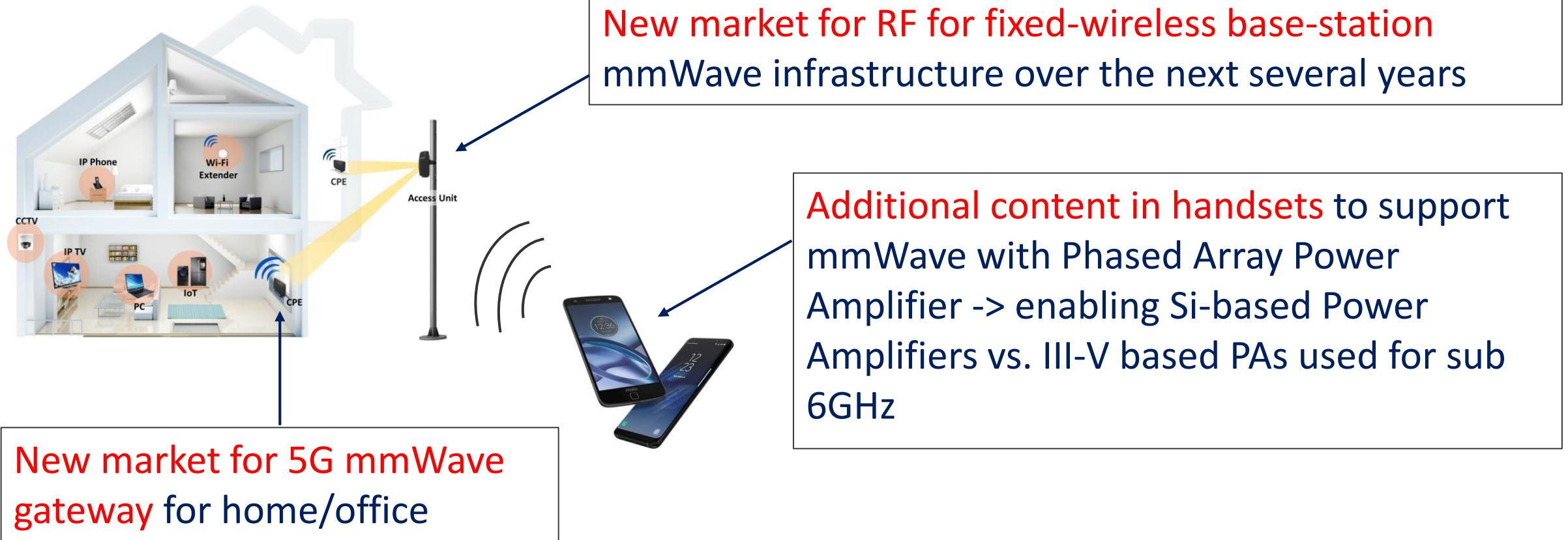


4 X 4 MIMO



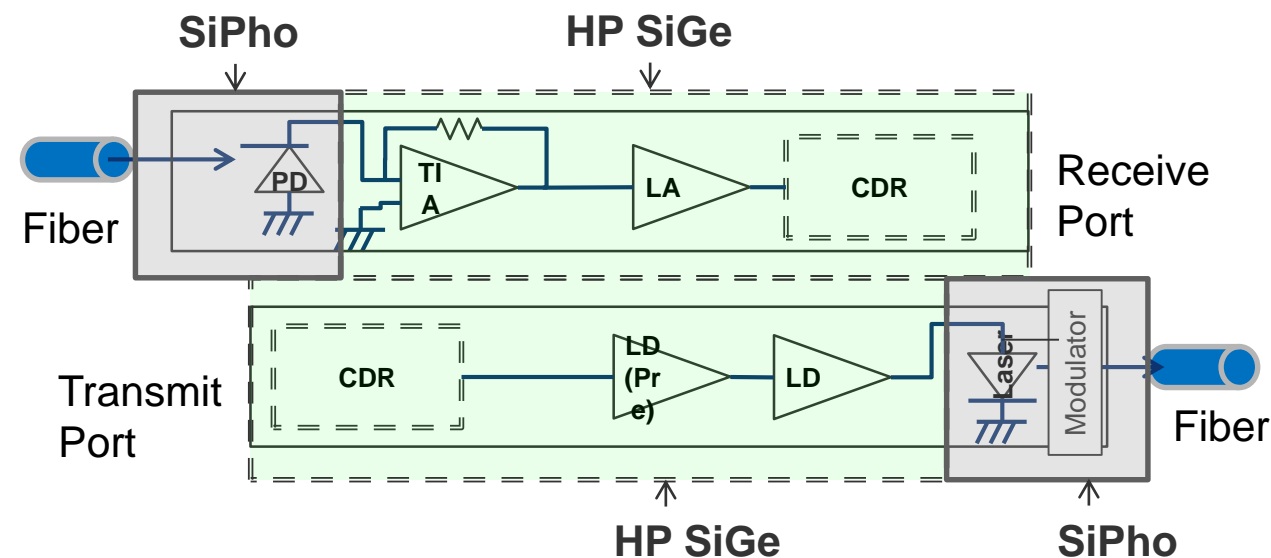
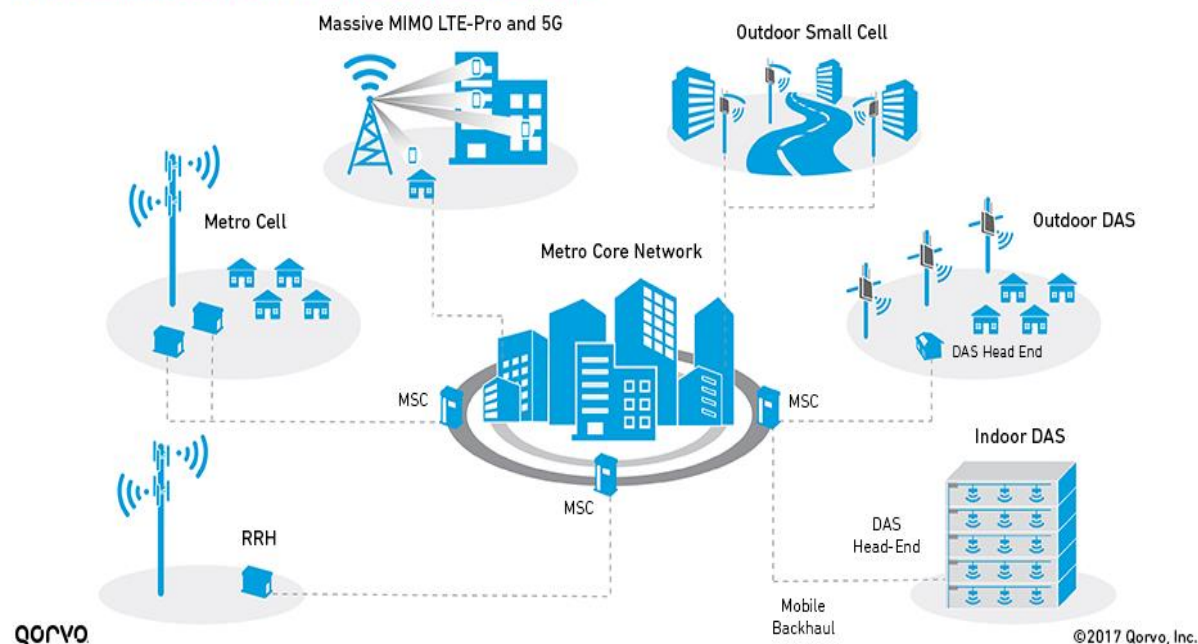
mmWave 5G: New Large Potential Market for Silicon-base RF

Small-cell fixed wireless access points can provide “last mile” broadband distribution and fast data to handsets in range creating a large new potential market for Silicon-based RF



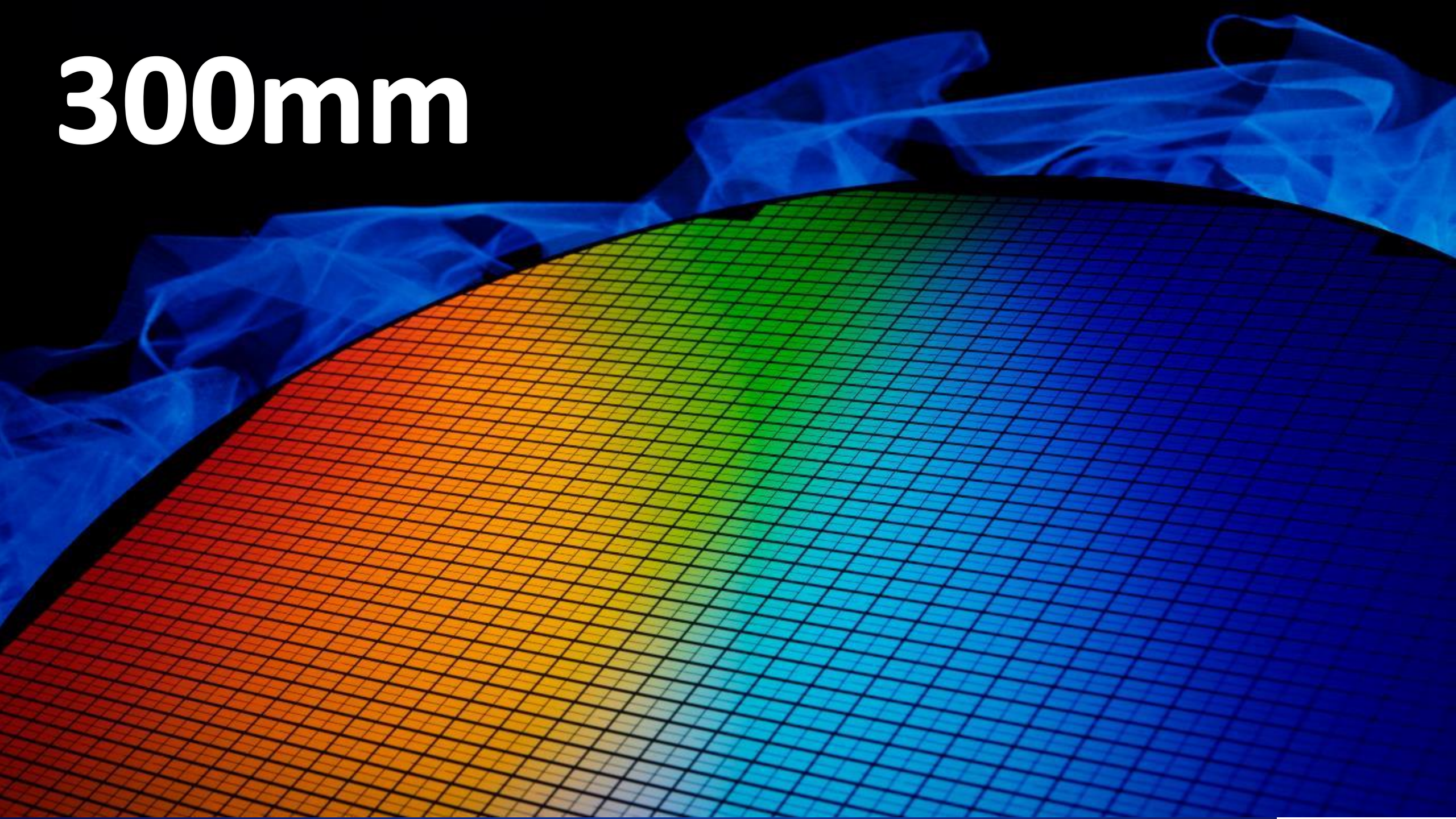
5G Infrastructure

Wireless Infrastructure: A Heterogeneous Network



- Optical fiber is likely to dominate transport from base-stations and small-cells into the network
- 5G increases the number of connections and also the speed (moving from 10Gb/s to 25Gb/s)
- Technology of choice is SiGe (TowerJazz holds >60% market share in this market)
- Silicon Photonics (SiPho) also expected to play a role in the coming years

300mm



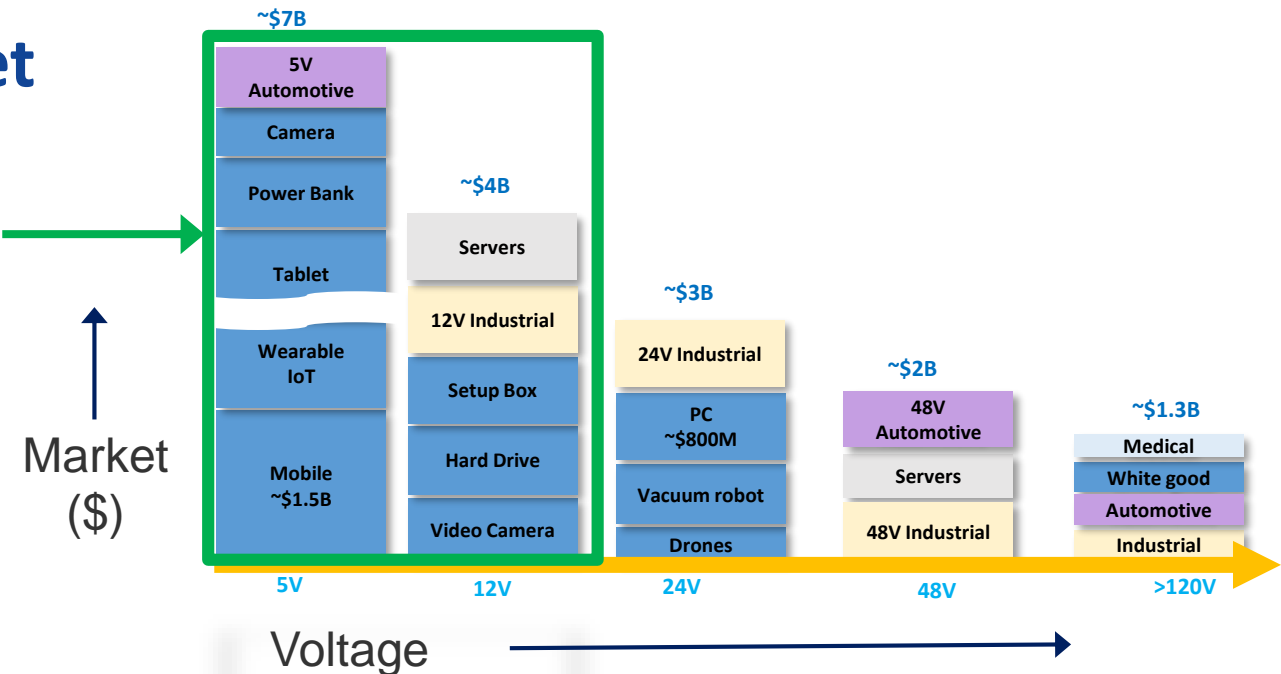
300mm Opportunity for TowerJazz

The ability to print smaller dimensions on 300mm wafers has enabled TowerJazz to expand its Analog/Specialty markets to include

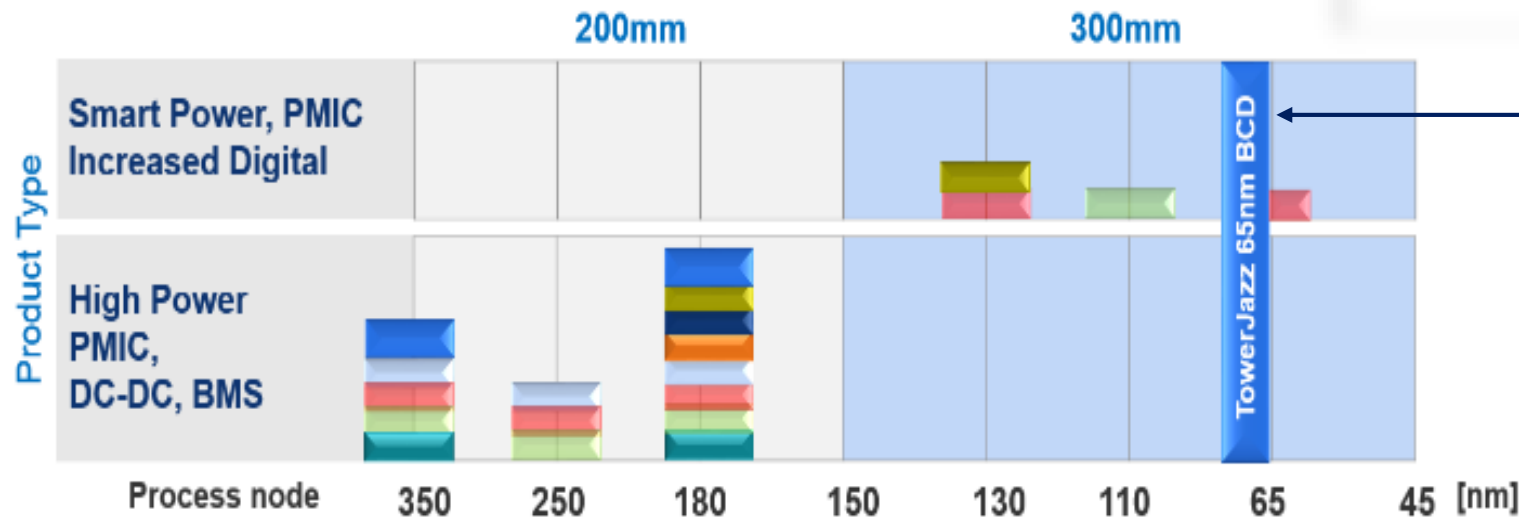
- **Smaller geometry RF SOI** with enhanced LNA and digital integration
 - 65nm RF SOI: 4x smaller digital and improved LNA performance for 4G and 5G
 - Now ramped to high volume
- **Low-Voltage Power Management** 65nm BCD (serving an \$11B analog market)
 - Best in class performance
 - Offering as much as 50% cost reduction vs. 0.18um at or below 16V
- **65nm Image Sensor**
 - Enabling the world's best global shutter and pixel size

300mm Power Management Market

300mm, 65nm BCD Power Technology addresses an \$11B Analog Low-Voltage Market



Power Management Foundry landscape



Few foundries offer 300mm BCD Power technology and among them TowerJazz has best-in-class performance at 65nm

Sources: Yole, IHS

CMOS Image Sensor Technology and Markets

Automotive



ADAS and
Autonomous
driving

Industrial / Machine Vision



2D barcode
reader
Traffic control
Industrial QA
Food
automation

Medical



Intra-oral
Extra Oral
Mammography
Surgery
C-Arm and
Flouro

High end photography and Cinematography



Cinematography
High end
DSLR
Mirror less
(ILC)

3D, Gesture control, AR/VR



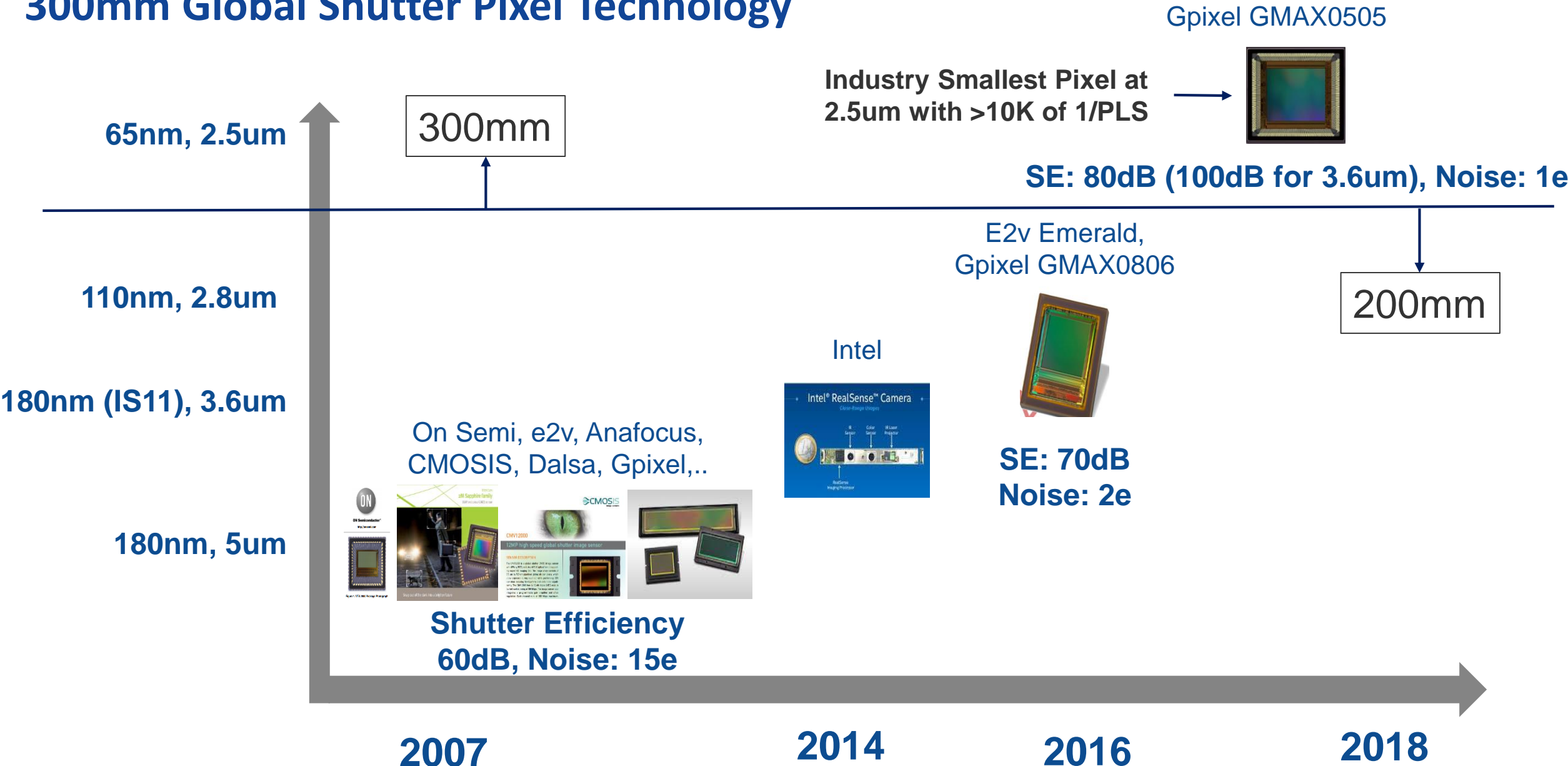
Gesture
Control
Augmented
Reality
Virtual Reality

Security



House safety
City safety
Border
Control
Cameras

300mm Global Shutter Pixel Technology



300mm CIS for Medical X-Ray Sensors

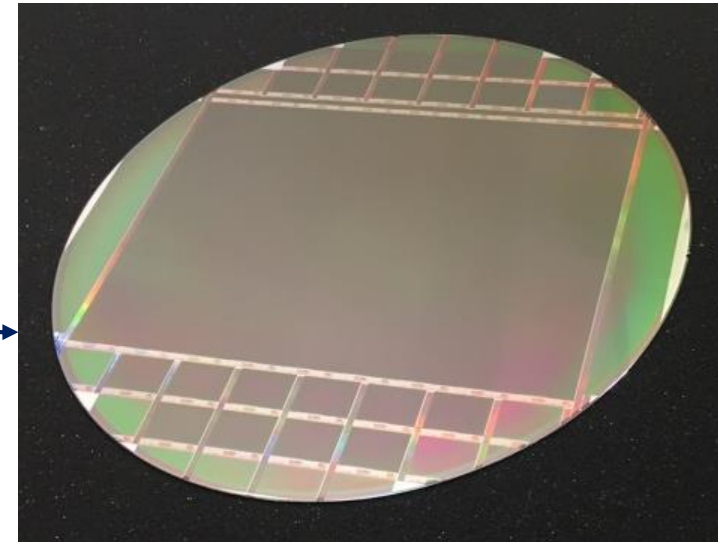
- Large flat panel detectors
- Replacing older technologies
 - Amorphous silicon plates (a:Si)
 - Image intensifier tubes (IIT)
- 0.18um on 200mm wafers
- 65nm on 300mm wafers



Radiography



300mm Single Die Per Wafer



Virtual Reality (VR) and Augmented Reality (AR)

ToF sensors for 3D mapping

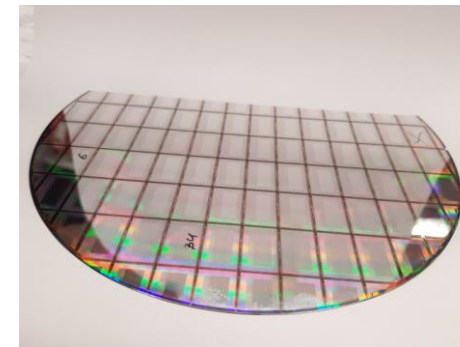
- NIR efficient pixel technology
- SPAD and other high gain sensors
- Advanced global shutter

Display technology

- LCOS technology (in production)
- micro OLED on Silicon (in R&D)
- **300mm necessary long term to deliver cost structure and volume**



LCOS wafer at EOL



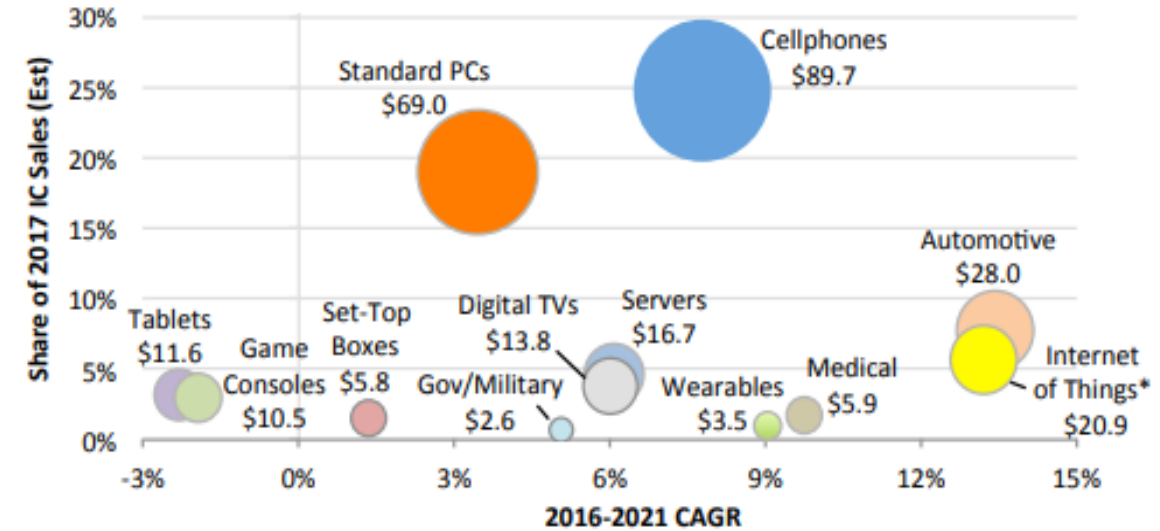
Automotive



The Automotive Opportunity

- Automotive is the **fastest growing** and the **third largest** end-use IC market
- Nearly **70%** of Automotive IC content is **Analog***, well aligned to TowerJazz Specialty Analog technologies
 - ✓ **Power** for EV/Hybrid battery management
 - ✓ **RF** for connectivity and Radar
 - ✓ **Sensors** for ADAS
- **Accelerating** pace of innovation is increasing **outsourcing to Foundry**

IC End-Use Markets (\$B) and Growth Rates



*Covers only the Internet connection portion of systems.

Source: IC Insights



* Markets and Markets – including in “Analog” Power, RF, Sensors, MCUs and other Analog (excluding Processors, Memory)

Automotive: Examples of Partnerships with Market Leaders

TowerJazz Announces DENSO Corporation utilized its Advanced 0.18um SiGe Technology to Develop a 24GHz Rear and Side Radar Sensor

Automotive radar market estimated to grow from \$1.4B in 2014 to \$5B by 2023



MIGDAL HAEMEK, Israel, August 14, 2017 — TowerJazz, the global specialty foundry leader, announced today that its 0.18um advanced SiGe technology was used to develop a 24-GHz rear and side radar sensor for DENSO Corporation, a leading supplier of advanced automotive technology, systems and components for major automakers. This sensor, using TowerJazz's submillimeter-wave technology, is used in the Toyota Camry that was released in North America in July and it will help enhance the vehicle safety system.

DENSO's rear and side radar sensor system offers SRR (short range radar), enabled by TowerJazz's advanced SiGe process, which helps alert the driver of vehicles approaching from behind when changing lanes and when reversing. It also helps perform automatic braking when reversing. According to Global Market Insights, the global automotive radar market size is estimated to exceed \$5 billion by 2023. The advent of self-driven cars is anticipated to drive industry growth over the forecast period.



TowerJazz and Crocus Expand Presence in Magnetic Sensors Market through Successful Licensing of Crocus' IP and Volume Manufacturing by TowerJazz

Crocus TMR sensors offer important advantages for multiple applications in IoT, consumer, automotive, industrial and medical sectors



MIGDAL HAEMEK, Israel and SANTA CLARA, Calif., September 27, 2017 — TowerJazz, the global specialty foundry leader, and Crocus, a leading developer of TMR magnetic sensor technology and embedded MRAM, today announce volume manufacturing of Crocus TMR (Tunnel MagnetoResistance) sensors, using TowerJazz's 0.13um CMOS process with a dedicated magnetic module in the Cu BEOL. With Crocus' magnetic process, know-how and IP, and TowerJazz's process technology and integration expertise, Crocus has successfully licensed the TMR technology to an automotive Tier 1 customer, bringing increased business to both companies.

According to a 2016 MarketsandMarkets report, the overall magnetic field sensors market was valued at USD \$2.25 billion in 2015 and is expected to reach \$4.16 billion by 2022, at a CAGR of 8.87% between 2016 and 2022. The growth of this market is driven by the rising demand for MEMS-based sensors across industry verticals, surge in the automotive industry, increasing demand for high-quality sensing devices, and continuous growth in consumer electronics applications.



TowerJazz and Aisin Seiki Announce Mass Production of New Generation Automotive Body Products

Aisin chips produced for car manufacturers using TowerJazz advanced power management technology



MIGDAL HAEMEK, Israel, and KARIYA, Japan, April 12, 2017 — TowerJazz, the global specialty foundry leader, and Aisin Seiki, Co., Ltd., one of the largest worldwide automotive component suppliers, today announce volume production of Aisin's new generation automotive devices for automotive body products for car manufacturers using TowerJazz's power management technology platform.

TowerJazz's power management platform enables industry leading performance for automotive chips by providing: scalable LDMOS and ESD devices for area efficiency, its patented highly-reliable Y-Flash OTP/MTP solutions, as well as buried Zener diode, Schottky diode and other advanced features.

TowerJazz is expanding its power technology availability to its TowerJazz Panasonic Semiconductor Company's (TPSCo's) Japan fab. TowerJazz and Aisin plan to ramp products also in TPSCo's 200mm automotive grade Japan fab, gaining multi-fab manufacturing flexibility.



BrightWay Vision Chooses TowerJazz for the production of its Gated Sensor for Automotive Imaging Applications



Rapidly growing vehicle cameras market expected to reach over US \$1B in 2020, expanding at a CAGR of 11.3% from 2014 to 2020

MIGDAL HAEMEK and HAIFA, Israel, June 22, 2015 — TowerJazz, the global specialty foundry leader, today announced that BrightWay Vision, a provider of groundbreaking vision technology for vehicles, has chosen its TS18IS CMOS image sensor (CIS) technology to manufacture image sensors for its patented automotive cameras, specifically forward looking cameras in vehicles, to allow visibility in all weather conditions. BrightWay Vision has developed BrightEye™, an Advanced Driver Assistance Systems (ADAS) camera for day and night-time forward facing driver assistance functions based on patented gated imaging technology.

According to a new market report published by Transparency Market Research entitled, "Vehicle Cameras Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2014 - 2020," the market was valued at US\$ 595.3 million in 2013 and is expected to reach US\$1.2 billion by 2020, expanding at a CAGR of 11.3% from 2014 to 2020.

Summary

- Strong financial base with continued good net profit and free cash flow, and growing net cash to support organic and in-organic growth initiative and long-term financial model
- We believe to be in the right markets with very strong offerings, aligned to 1st-tier customer partner requirements
- Good growth opportunities in 5G, 300mm technologies, and Automotive spanning our RF, Power, and Sensor areas of focus

The image features a stylized globe with a grid pattern, set against a deep blue background with stars. Several white orbital lines with bright star-like points at their intersections are drawn across the globe. The TowerJazz logo is prominently displayed in the upper center, with the website URL below it.

TOWERjazz

www.towerjazz.com