RECON® PACKAGING TECHNOLOGY FOR
“SYSTEM INTEGRATION & PORTABLE/WEARABLE/IOT DEVICES”

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OUTLINE

- Market dynamics
- Connectivity IoT challenges and current solutions
- ReCon® technology and advantages
- Production performance
- Scalability
- Conclusions
- Acknowledgement
TRENDS DRIVING SEMICONDUCTOR DEMAND

New Content & Services

Proliferation of Devices

Exponential Network Traffic

- Android
- YouTube
- Facebook
- AT&T U-verse
- twitter
- Netflix
- verizon FiOS
- Skype
- hulu
- Wi-Fi
- Bluetooth
- HomePlug Alliance
- MoCA
By 2018 Content services including mobility, cloud, big data and social media is expected to become a $137B market.

Source: IDC Futures Report, 2014
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By 2020, there will be more than 40.9 billion wireless connected devices— that will exceed the world’s population.

Source: ABI Research, August 2014
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By 2018, every second, nearly a million minutes of video content will cross the network.
NEW APPLICATIONS UNLEASHING INNOVATION

WICED™ WI-FI
Always-on Connection to the Home Network

WICED SENSE™
Development Kit

WICED™ SMART
Bluetooth Boost for Low-power Products

Wireless Internet Connectivity for Embedded Devices (WICED™)

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BUILDING MOMENTUM IN NEW MARKETS

Automotive

High Performance Connectivity

Wireless Hotspot
Infotainment
360° Camera System
On-board Diagnostics
CURRENT PACKAGING SOLUTIONS FOR CONNECTIVITY AND IOT

**Challenges**

- Thermal dissipation
- Ensuring signal and power integrity
- Lower cost
- Smaller
- Smarter
- Ensuring reliability and quality

**Wafer Level Package**

- Smallest form factor to for module
- WLCSP (Ball)
- WLCSP (Bump)

**Flip Chip Package**

- Molded underfill and capillary dispense underfill

**Package On Package**

- Bare die, thin profile PoP

**Hybrid Package**

- Maximum integration at low cost

**QFN / Multi-row QFN Package**

- Enhanced Thermal Performance

**Stacked Die Package**

- System in package for miniaturization
RECON® INNOVATIVE PACKAGING TECHNOLOGY

Single infrastructure for all applications and package types
ADVANTAGES OVER WL FANOUT, FLIPCHIP CSP AND BGA

- **Size**
- **Performance**
- **Cost**
- **Interconnect Density**

ReCon® BGA
• Over 16 million units shipped since year 2013
• Broad application coverage
• Equal or better assembly yield than current package technologies
SCALABILITY

Interconnect Density & System Partitioning

Multilayer & Design Flexibility

Superior Electrical, Thermo/ Mechanical Performance

Quality & Reliability

ReCon® WLP

Supply Chain Flexibility

DFT & DFM

Form Factor Flexibility

Cost Advantage

ReCon® Flipchip Package Variants

ReCon® iPoP™ -3D
CONCLUSIONS

- Packaging technologies convergence
- Volume drives standardization and efficiency
- ReCon® technology is a manufacturing proven packaging approach:
  - Broad coverage
  - Lower cost
  - Better performance
  - Scalable

Resulting in smarter, more efficient IoT, wearable and global networking solutions
THANK YOU