Microsemi Innovation Lab Grand Opening
Microsemi IoT Portfolio

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IoT at Microsemi

- From Sensors to Networks MSCC has a broad portfolio of products and capability
- Microsemi offers products that enable the building and the using of IoT devices
  - “Internet” (classifying, processing, routing, aggregating, storage, and timing data)
  - “Things” (capturing, reduction, securing, and transmission of data and control)

- MSCC base technology enablers
  - Low Power
  - Security
  - Reliability
  - Programmability
  - Real world connection
    - Sensors
    - Drivers
    - Power
    - Time
IoT at Microsemi

From Sense to Control

- Sensor Processors (light, inductance, magnetic, …)
- Power delivery, harvesting, and management (PoE, ULP regulation, switching …)
IoT at Microsemi

- Security (system, software, firmware, hardware)
  - Data in motion (Crypto, keys, …)
  - Data at rest (Obfuscation, Anti-Tamper, DPA, PUF)
IoT at Microsemi

- Communications (wireless and wired)
  - Wi-Fi
  - Switching and routing
    - Security and time sensitive
    - Targeted for applications
  - ULP Radios (Star and Mesh networks)
  - Powerline

Power Line Communications

- POE
- Wireless
- LAN/USB
- LED Driver
- Processor
- AFE
- Line Driver
- Le87401
- Isolated AC/DC Power Supply
- DC/DC Power
- Power Line

In Development: LX3300

VeriTime
intellisec
ViSAA

- Implements IEEE 1588v2 packet timing protocol for IP/Ethernet Networks
- Enables end-to-end IEEE 802.1AE AES 256-bit network encryption
- Implements MEF CE 2.0 features and services

IoT at Microsemi

- Time
  - IEEE 1588 (Jitter as low as 130fS)
  - TSN (Time Sensitive Networking)
  - Phy time stamping
  - 5-10e-11 accuracy
  - Low Power distribution

Key Specifications
- ±5.0E-11 accuracy at shipment
- <1.0E-10 month aging rate
- 5 W Power Consumption
- 47 cc in Volume
IoT at Microsemi

- Signal processing
  - FPGAs (Low Power, high security)
  - Audio and Video signal processors
    - Beam Forming
    - Audio Classification
    - Near Field Rejection
IoT Related Products at Microsemi

Audio Processing
Ethernet PHYs
Clock Management
Ethernet Switches
Microphone Pre-amplifiers
Network Synchronization
Optical Drivers
Power over Ethernet (PoE)
Reverse Power Feed (RPF)
Signal Processing
Switches (Crosspoint and TDM/TSI)
T1/E1 Interfaces
Ultra Low-Power Wireless
Voice Echo Cancellation
WLAN RFICs
Drivers and Interfaces
A/D & D/A Converters
Line Drivers
Optical Drivers
Sensor Interface
Signal Integrity
FPGA & SoC
Memory, Processors & Storage
Solid State Drives
Power Discretes & Modules
Silicon Carbide (SiC)
Rectifier Modules
Power Management
Battery Chargers
Drivers, High-Side

FET Drivers, Low-Side
Linear Regulators
Motor and Fan Controllers
Resonant Mode (LLC) Controllers
Supervisory Circuits and Voltage References
Switching Regulators
Relays & Contactors
RF, Microwave & Millimeter Wave
RF/Microwave Subsystems (Multi-Function Assemblies to 140 GHz)
RF Modules (Single-Function Assemblies to 140GHz)
RF Discretes
RF/Microwave Amplifier Systems
RF Transceivers (Sub-GHz)
ASIC
Information Assurance
Mixed-Signal ASIC Design Services
Power Supplies
Security Center of Excellence
Cryptography
Ethernet Software
Forward Error Correction (FEC) Cores
Gigabit Ethernet PHY Cores
Gigabit Ethernet Switch Cores
Hardware Anti-Tamper
Software Anti-Tamper
IEEE 1588 Software
Timing & Synchronization
Clocks and Synchronization ICs
Clocks & Frequency References
Example: IP Security Camera

- Timberwolf with AcuEdge technology audio processing
- FPGA for optional video processor offload and motor control
- PoE PD control and discretes, Midspans, switches/PHYs
Example: Highly Integrated Solution

Multiple Industrial-drive functions integrated into a single SoC FPGA

- Control algorithm (FOC)
- Communication interfaces and protocols like Industrial Ethernet, USB, CAN
- Safety overcurrent protection, detecting phase-imbalance
Example: Home Automation Gateway

- ZL70251 Low Power Radio
- Host Processor with Microsemi WhiteBox Crypto
- 802.11 SoC
- ZL38060 Audio Processor
- PLC SoC
- PLC Line Driver
- Le87401
- HPF
- 12VDC
- Non-Isolated DC/DC
- NX9548
- LX5586H RF Front End
Example: Wireless Camera Capsule

- World’s First **Swallowable** Wireless Camera Capsule

- Approximately 57,000 pictures transmitted over 8 hours
Value Proposition

Microsemi technology will enable you to turn your IoT ideas into high performance products.
Thank You