The Internet of Things starts with intelligence inside
인텔 IoT 플랫폼 및 Ecosystem 소개
인텔코리아 ESS 박종섭 이사
James.park@intel.com
intel
McAfee
WIND RIVER

WHY NOW?

Market Trends Driving IoT

EVERYTHING CONNECTED

COMPUTE ECONOMICS

BIG DATA AND ANALYTICS

Intel - Delivering Device to Cloud

A New Era of

INTEGRATED COMPUTING

Delivering Value through Business Transformation

OPTIMIZING GLOBAL INFRASTRUCTURE

INTEGRATED INTO OUR LIVES

DELIVERING EFFICIENCIES IN MANUFACTURING

Westfalen Weser Energie

DAIKIN

intel

THE BIG OPPORTUNITY

- DATA GROWING AT 10X
- DATA GROWTH BY 2016 – 90% UNSTRUCTURED[2]
- CONNECTED DEVICES GROWING AT 300%[3]

[1]IDC, Intel, United Nations
[2]IDC Digital Universe Study, December 2012
3- McKinsey Global Institute

Intel's Vision

Internet of Things

INTELLIGENT DEVICES

Deliver Intelligence where needed to acquire and filter data securely

INTELLIGENT SYSTEM OF SYSTEMS

Billions of intelligent devices sharing data and securely, supporting legacy and new environments

END TO END ANALYTICS

Solutions from device to cloud to deliver end-to-end customer value

INTELLIGENT DEVICES

INTELLIGENT DEVICES

Deliver Intelligence where needed to acquire and filter data securely

Announcing Today

Intel® Atom™ E3800 processor family for IoT and Intelligent Systems include

- Improved Power/Performance
- Error Correction Code (ECC)
- Industrial Temperature

xerox

Intel® Quark SoC X1000 processor family, features include

- Low Power, Integrated SOC
- Error Correction Code (ECC)
- Industrial Temperature

Scalable Roadmap of Products for IoT

intel inside XEON

intel inside CORE i3 intel inside CORE i5 intel inside CORE i7

intel inside ATOM

intel Quark

www.intel.com/content/www/us/en/intelligent-systems/bay-trail/atom-e3800-xerox-solving-business-challenges-video.html

Announcing Products
Based on the Intel® Atom™ Processor E3800 Product Family

EVOLVING IOT SECURITY FOR DEVICES

McAfee

Greg Brown, CTO

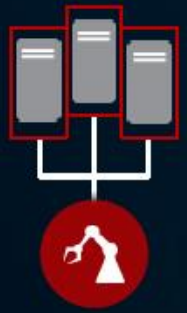
CLOSED

Data Center

Assumed Air Gap

DEVICE ORIENTED

Data Center



Device level controls
Tightly coupled connectivity

E2E INTEGRITY ASSURANCE

Data Center

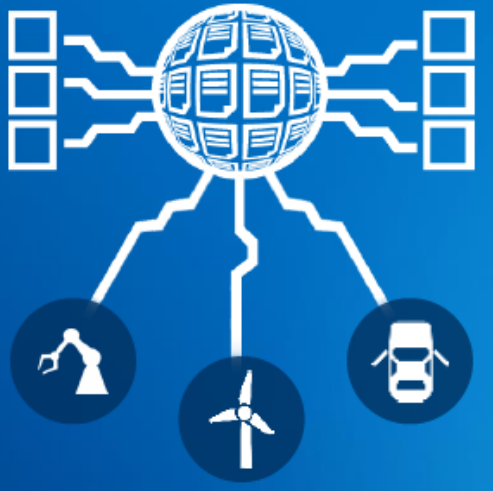
Strong device controls
Extensible connectivity
Common trust model
Support for new data usage

INTELLIGENT IoT GATEWAY

INTELLIGENT SYSTEM OF SYSTEMS

- Edge Analytics
- Security
- System of Systems Middleware
- Data Acquisition

- Open Architecture for Ecosystem Apps and Services
- Enable seamless interfaces
- Ensure interoperability between edge systems
- Secure and federate data between cloud and edge for analytics



intel inside XEON

intel Quark

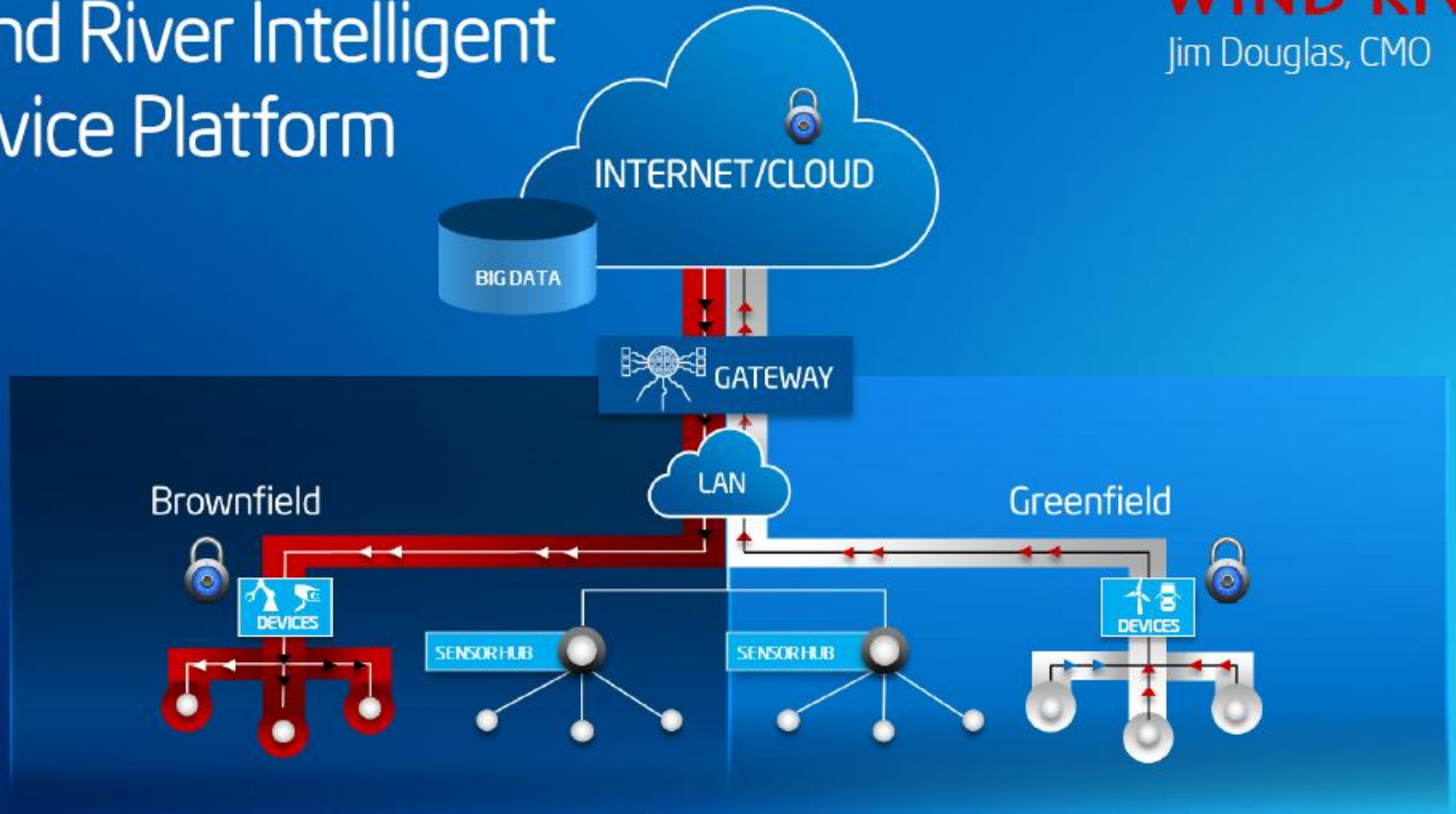
Announcing Today

- A family of gateway solutions starting with Intel® Quark SoC X1000 **and** Intel® Atom™ E3800 processor families
- Integrated, validated solution with McAfee and Wind River
- Working with ODMs to develop development kits and reference boards
- Samples in Q4, launch in Q1

Wind River Intelligent Device Platform

WIND RIVER

Jim Douglas, CMO



Connect Manage Secure

END-TO-END ANALYTICS

Delivering Business Transformation – Data from Edge/Big Data

END-TO-END ANALYTICS

- Create value from data
- Provide horizontal building blocks for vertical end-to-end analytics
- Distribute analytics at edge systems and in datacenter

EXTENDING MARKET ENGAGMEMENT

- Data from Devices drives network and Cloud
- IoT analytics is distributed from devices to data center
- Optimized Hadoop and other building blocks for data center analytics
- Reference architectures and case studies in next two quarters

Bringing All the Elements

TOGETHER

Intelligent Building Systems
Daikin Applied

Kevin Facinelli – Executive Vice President, Operations

© 2013 Daikin Applied

Customer HVAC Demands Increasing

More efficiency – More reliability – More comfort

Open systems
Sustainable
Supportable

Automatic upgrades
Scalable features
Minimal maintenance

Any device
Any network
Any time

Big data analytics
Data source Integration

Secure
Reliable

Daikin technology powered by the Intel IOT ecosystem

DAIKIN

© 2013 Daikin Applied

Disruptive Technology for Commercial Buildings

Worlds most innovative and energy efficient equipment

Cloud

Aggregate, integrate, analyze

Performance Management (Owner)

Asset Management (Service)

The future beyond smart products is

“Intelligent Equipment”

DAIKIN

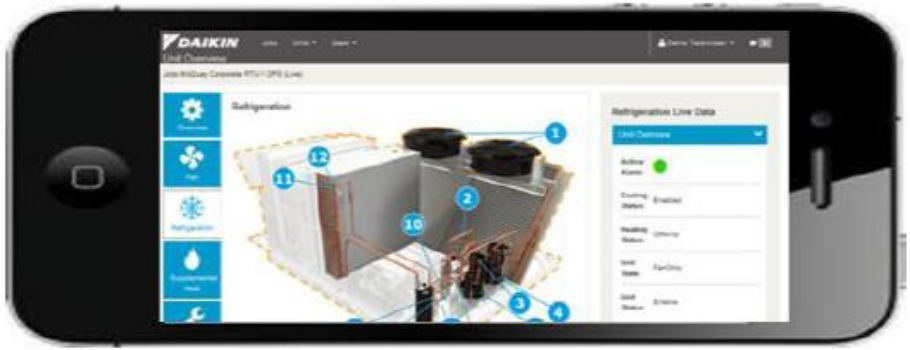
©2013 Daikin Applied

Daikin "Intelligent Equipment" Systems Solution

Building Performance Management

- Simple, powerful, easy interface
- Energy performance
- Comfort control analytics
- Building performance benchmarking
- Utility grade demand response
- Sustainability and regulatory reporting

Asset Management

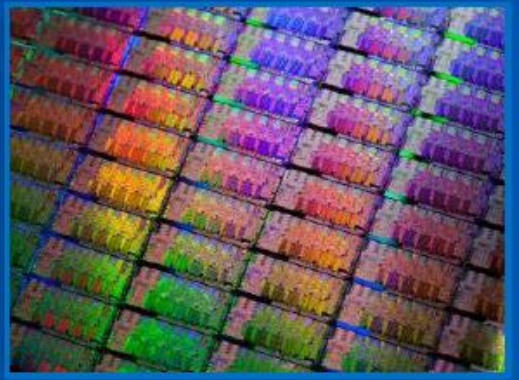


- 24/7/365 anywhere access
- Advanced notification services
- Real time HVAC unit performance
- Remote diagnostics and monitoring
- Performance based maintenance management
- Online integrated service and parts locator

DAIKIN

© 2013 Daikin Applied

WHY Intel?



INDUSTRY AND TECHNOLOGY LEADERSHIP

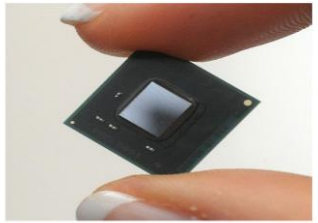
DATA CENTER AND CLOUD LEADERSHIP

GLOBAL ECOSYSTEM

What We Are Announcing
TODAY
Intel delivers intelligence from device to cloud to drive the internet of things
Extending product roadmap for devices with Intel® Quark SoC X1000 and Intel® Atom™ E3800 Processor Families
Family of Intelligent Gateway Solutions launching in Q1'14
Strong Industry collaboration to accelerate IoT deployments

WIND RIVER

Intel Quark SoC 상세 규격



Intel® Quark SoC X1000 – Pentium compatible ISA

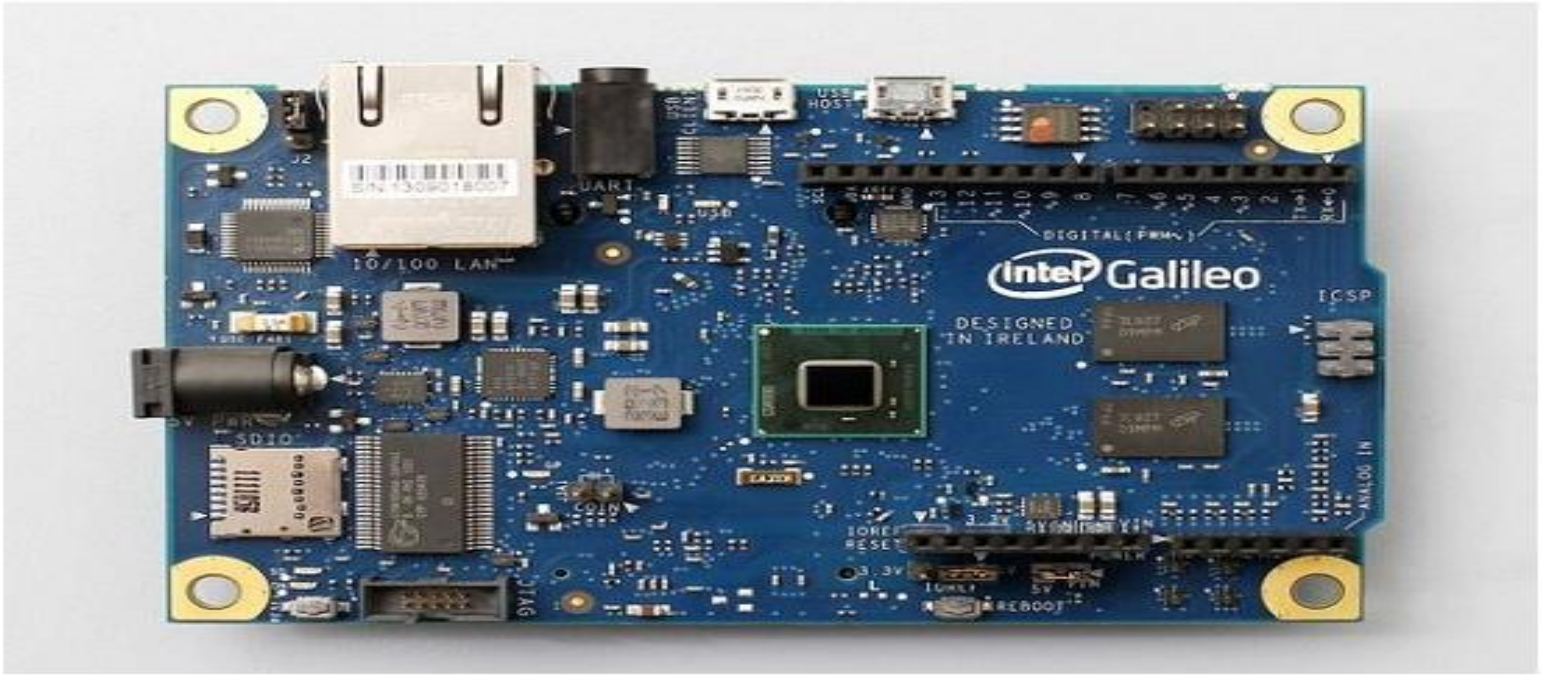
- **Processor Core**
  - Single Quark CPU Core, Single Thread
    - 32 bit, x86, @ 400MHz
- **Processor UnCore**
  - DDR3 memory controller
    - Up to 2GB @ 800MTs
    - ECC-On-Chip
  - Embedded 512KB SRAM
  - Legacy Block
    - PC compatible IO ports, APICs, etc.
    - 20MHz Legacy SPI for boot code
  - Low cost 5-pin JTAG Port
- **Open Hardware Architecture**
  - AMBA Bus fabric = Flexible Silicon IP
- **Industry Standard I/O Hardware**
  - 2 - x1 PCIe Gen 2*
  - 2 - 10/100Mb Ethernet MACs
  - 2 - USB2 host ports (EHCI, OHCI)
  - 2 - HS UART controller
  - 2 – 50MHz SPI ports for peripherals
  - 1 – USB2 HS Device port
  - 1 - SD/SDIO/eMMC interface
  - 1 – I2C/GPIO Host controller
  - 16 - GPIOs w/ programmable interrupts

- **Physical**
  - Package size 15x15mm
  - 393 Pin, FC BGA bare die
  - 0.593 Ball Pitch
  - Enables FR4 SFF Board
- **Thermals**
  - TDP: 2W (VR dependent)
  - Tj = 110°C
  - Commercial Temp (WW46)
  - Ext temp -40 to +85°C (Q1'14)
  - Programmable Thermal sensor

- **Industry Standard Software Support**
  - Standard Compiler Support (ICC/GCC)
  - Pentium ISA Compatibility (.586)
  - Runs unmodified Linux Kernels (v3.9)
  - Yocto based distribution
  - Validated w WR IDP 2.0 (Linux & VxWorks)
  - Open Source UEFI EDK II
  - GRUB boot loader support
  - Open OCD Debugging support
  - Compliant with PCIe, USB, ACPI standards
- **Security**
  - Secure Boot Technology Option
  - Supervisory Mode Execution Protection
  - Secure Recovery for UEFI FW
  - Secure Remote Upgrade w/ WR IDP 2.0
- **Electricals:**
  - Single xtal for internal/external clocks
  - Enabled Single std external VR solution

*PCIe Gen1 speed to save power

Intel® Quark SoC 및 Galileo Board



마이크로 컨트롤 프로세서, 인텔의 갈릴레오(Galileo)

Intel® Galileo Board 상세 규격

Intel® Galileo Board with Arduino Compatability

- Intel® Quark SoC X1000
  - 400 MHz Quark Core
  - 512KB eSRAM, 16KB L1 cache
- 256MB DDR3-800
- 10/100Mb Ethernet Port
- USB2.0 Device Port
- USB2.0 Host Port (EHCI/OHCI)
- RS-232 UART Port, 3.5mm jack
- PCIe Gen 2 Full Mini-card slot
- Micro SD slot, up to 32GB
- 8MB NVRAM SPI NOR flash chip
- SPI programming port
- 10 pin JTAG

- Physical Characteristics
  - 6 Layer Board
  - 10cm x 7cm

- Arduino Compatible Interface (For Educators, Students, and Makers)
  - 6 channel A-to-D Converter
  - 1 SPI port (up to 25MHz)
  - 1 UART
  - 1 I2C
  - 14 GPIOs w prog interrupts
  - 6 PWM

- **Open Source Hardware and Software**:
  - Arduino Software IDE for the Intel® Galileo Quark SoC X1000
  - Linux firmware pre-installed with
    - Full open source driver
    - Full open source tool chain
  - Open HW Documentation
    - BOM/Schematic/Board File/
    - Datasheet

감사합니다.

회사문서 보안 관계로 일부 자료를 공개하지 못한점 양해 바랍니다.
IoT 제품 및 사업에 대한 관련 문의는
인텔코리아 박종섭 이사(james.park@intel.com)
유니퀘스트 서규태 부장(tom@uniquest.co.kr)에게
이메일 통해 연락주십시요. 만나뵙고 제품 및 사업에 대해 소개토록 하겠습니다. ^^