實現智慧物聯的必要條件
NXP Products Power The Internet of Things

Microcontrollers | Digital Networking | Auto MCU | Analog and Sensors | RF | NFC | Wireless Connectivity

Automotive
- Advanced Safety
- Traffic Monitoring

Networking
- Cloud Computing
- Base Stations
- Enterprise Gateways, Switchers, Routers

Industrial
- Security
- Networked Printers
- Security

Consumer
- Infotainment
- Radar + Vision
- Connected Appliances
- Connected Farms

Industrial
- Energy Management, Wind + Solar
- Digital Power Conversion

Consumer
- Home Health Monitors + Fitness
- Telehealth
- Health Monitors

Consumer
- Home Hubs
- Smart Energy Grid
- Human – Machine Interface

Consumer
- Energy Meters
- Machine – Machine

Consumer
- Connected Appliances
- Connected Farms

Digital Networking
- Cloud Computing
- Metro Cells
- Small Cells

Digital Networking
- Metro Cells
- Small Cells

Digital Networking
- Security
- Networked Printers

Digital Networking
- Cloud Computing

Digital Networking
- Metro Cells
- Small Cells

Microcontrollers
- Microcontrollers

Auto MCU
- Auto MCU

Analogue and Sensors
- Analog and Sensors

RF
- RF

NFC
- NFC

Wireless Connectivity
- Wireless Connectivity
Challenges in IoT

- Inconsistent Developer Experience
- Security
- Getting to Production
NXP IoT Offerings

Xtrinsic Sensing
Intelligent Contextual Sensing.

The right combination of intelligent integration, logic and customizable software on the platform to deliver smarter, more differentiated applications.

For IoT it provides Context: Identity, Activity, Location, & Time

Edge products:
- Very small
- Low cost
- Low power
- Low complexity
- Industrial grade & robust

Connectivity
BAN/ PAN/ LAN

Fully integrated Short Range radios with best in class power performance, and Powerline Communications

The right combination of intelligent integration, logic and customizable software on the platform to deliver smarter, more differentiated applications.

For IoT it provides Context: Identity, Activity, Location, & Time

Sensing
Embedded Processing
Communications

Kinetis & LPC Microcontrollers
Design Potential. Realized

Industry’s most scalable ultra-low-power, mixed-signal MCU solutions based on the ARM® Cortex™-M and Cortex™-M0+ architectures.

Vybrid Controller Solutions
Rich Apps in Real Time.

Real-time, highly integrated solutions with best-in-class 2D graphics to enable your system to control, interface, connect, secure and scale.

i.MX Applications Processors
Your Interface to the World.

Industry’s most versatile solutions for multimedia and display applications, with multicore scalability and market-leading power, performance & integration.

Digital Network Processors built on Layerscape Architecture
Accelerating the Network’s IQ

Industry’s first software-aware, core-agnostic networking system architecture for the smarter, more capable networks of tomorrow – end to end.

Scalable Industry Standard Solutions, Software and Development Ecosystem
NXP Products & Enablement for IoT

**KEY FEATURES**
- Voice Triggering
- Simplified Device Commissioning
- Interoperable Wireless Connectivity
- Security
- Sound/Audio Detection

**WIRELESS CONNECTIVITY & NFC**
- ZigBee
- Bluetooth
- NFC
- Bluetooth Smart Mesh
- ntag

**PRODUCTS FOR**
- Kits, Reference Designs, Solutions

**ENABLEMENT**
- Microcontrollers
- Secure Element
- Application Processors
NXP (both NXP LPC and former Freescale) have longstanding track records of providing long-term production support for our products.

NXP has a formal product longevity program for the market segments we serve:

- For the automotive and medical segments, NXP will make a broad range of solutions available for a minimum of **15 years**
- For all other market segments in which NXP participates, NXP will make a broad range of solutions available for a minimum of **10 years**
  - **Life cycles** begin at the time of launch
  - Includes NXP’s standard end-of-life notification policy

For a complete list of participating products, visit, nxp.com/productlongevity
SMART CONNECTIVITY
NXP Connectivity Product Portfolio

**Zigbee**
- Cost optimized
- JN516x
- Available, MP

**Thread**
- Border router, Router, REED, SED
- KW21Z
- Available, MP
- Planning under definition

**Multi-protocol**
- Zigbee, Thread, BLE
- KW21Z
- Available, MP

**BLE standalone**
- Cost optimized
- KW41Z
- Available, MP
- Target wearables market
- KW31Z
- Available, MP

- HomeKit ready & HW compatible with 15.4
- QN902x
- Available, MP
- End of June
Target Development Systems: Gateways/Border Routers/End Nodes

K64F Freedom Board
- 120 MHz Cortex-M4F MCU
- Up to 1 MB Flash, UP to 258 KB RAM
- Integrated Ethernet
- Thread and ZigBee
- Launching Oct 6th

KW2x FRDM-KW24D512

i.MX6UL EVK
- 528MHz Cortex-A7 CPU
- 4 GB DDR3L DRAM memory
- 256 MB Quad SPI Flash
- Arduino/Freedom connector
- Launching Oct 6th

K64F RTOS Border Router

KW2x Linux Gateway/Border Router

USB-KW24D512
Three Phase Power Meter

- Low cost NXP ARM Cortex™ M0+ SoC KM14 for metering
- Conforms to China National Grid Standard
- High performance of 0.5% accuracy for Active and Reactive energy under full temperature range
- ESD performance up to +/-12KV
- High accuracy RTC clocking with 5ppm resolution
Smart Plug

- NXP Kinetis MKM14Z64 MCU (ARM® Cortex™-M0+ core)
- NXP Kinetis MK22FN512 MCU (ARM® Cortex™-M4 core) for WiFi connection
- (or add KW41Z by BLE/Thread/Zigbee)
- 220V input voltage, 10A max current
- 24-bit SD ADC for current sampling with 25ppm 5m ohm current sampler
- 24-bit SD ADC for voltage sampling with 25ppm resistor voltage divider
- 5ppm RTC solution with external 32.768KHz crystal
- External 64Mb SPI Flash Storage
- Low-power mode including the use of built-in RTC
- 3 channel LED pulse outputs for calibration (kWh, kVarh)
- Cost-effective bill of materials
- 60th harmonic analysis with THD calculation and display in FFT version.
HUMAN MACHINE INTERACTION
Touching Sensing Interface (TSI) Demo

- FRDM-TOUCH is a shield board connected to the FRDM-KE15Z board which integrates new generation touch sensing interface
  - supporting both self capacitance and mutual capacitance mode
  - 16-bit conversion resolution and configurable sensitivity to handle different overlay material, thickness
  - IEC61000-4-6 certified (both 3V/10V), immunity to a wide range of noise
- Demo touch keys, touch slider, rotary & touch key matrix
- When you touch the keys on FRDM-TOUCH board, the RGB LED is turned on. When you touch the slider, the blue LED will gradually illuminate based on the distance your finger moved on the touch slider
NXP’s deliverables for industrial wearables
Start your wearable design now

HEXIWEAR
Kinetis Low Power Microcontroller open source solution with 7 NXP products including MCUs, BLE Connectivity, Sensors... 200 add-on boards available with example code

WARP 7
i.MX 7 Microprocessor open source solution with 8 NXP Components including NFC, External Memory, Wifi module... 200 add-on boards available with example code

SCM
i.MX 6 Quad Microprocessor high integrated System in Module, with power management, 16MB NOR Flash, +100 discrete components in a 14mm x 17mm package...
Hexiwear Next Gen IoT Solution for Innovators

Value Proposition

Fastest Time to Market
Versatile solution created to reduce development and design time for IoT applications

Path to Manufacturing
Designed to accelerate the customer's time to manufacturing. The BOM is readily available in the market and the design files/schematic is open source.

Optimized Hardware Design
The hardware design is optimized and includes several best practices suggested for designing low power IoT applications

Robust Software
The software includes everything from the embedded drivers to the cloud connectivity - all open source, easy to use and optimized

Community Supported
Hexiwear is a true community based solution and enables customers to access the rich pool of resources created by community

Target Applications
IoT end nodes & Wearables

Key Components

Total NXP BOM
$16 - 7 NXP components: MCUs, connectivity, sensors and battery charger - Kinetis K64 MCU based on ARM Cortex-M4 core

Kinetis KW40Z multimode BLE and 802.15.4 radio SoC

Color OLED Display, Rechargeable battery, External flash

Design Resources Available

Software
Schematic, Design Files, Bill of Material (BOM)
iOS and Android App

Software Development Environment
Kinetis SDK (Open-source and Free)
Kinetis Design Studio (Open-source and Free)
FreeRTOS (Open-source and Free)
3 Things about **Android Things**

What **YOU** need to know:

- Android Things is Android for the IoT market

- A certified module is needed to run Android Things
  - *NXP is one of three companies that currently have certified modules*

- The Google Voice Assistant & Chromecast Built-in are applications that run on Android Things
Android Things is ideal for powerful, intelligent devices on the edge that need to be secure

Security Systems
Routers
Smart Doorbells
Energy Monitors

Point of Sale
Inventory Control
Smart Vending Machines

Cameras
Gateways
HVAC Controls
Smart Meters

Asset Tracking
Fleet Management
Driver Assist
Predictive Service
# Android Things Certified Platforms Roadmap

## Hardware platforms

<table>
<thead>
<tr>
<th>Platform</th>
<th>Intel® Edison</th>
<th>Intel® Joule</th>
<th>NXP Pico i.MX7D</th>
<th>NXP Pico i.MX8UL</th>
<th>NXP Argon i.MX6UL</th>
<th>Raspberry Pi 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where to buy</td>
<td>Where to buy</td>
<td>Where to buy</td>
<td>Where to buy</td>
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<td>Get Started</td>
<td>Get Started</td>
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<td>Get Started</td>
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<tr>
<td>CPU &amp; Memory</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- Intel® Atom™</td>
<td>- Intel® Atom™</td>
<td>- NXP i.MX7D</td>
<td>- NXP i.MX6UltraLite</td>
<td>- NXP i.MX6UltraLite</td>
<td>- Broadcom BCM2837</td>
<td></td>
</tr>
<tr>
<td>- 500MHz dual-core x86</td>
<td>- 1.5GHz/1.7GHz quad-core x86</td>
<td>- 1GHz dual-core ARM Cortex A7</td>
<td>- 500MHz ARM Cortex A7</td>
<td>- 512MB RAM</td>
<td>- 1.2GHz quad-core ARM Cortex A53</td>
<td></td>
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<tr>
<td>- 1GB RAM</td>
<td>- 3GB/4GB RAM</td>
<td>- 512MB RAM</td>
<td>- 512MB RAM</td>
<td></td>
<td>- 1GB RAM</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>4GB eMMC</td>
<td>8GB/16GB eMMC</td>
<td>4GB eMMC</td>
<td>4GB eMMC</td>
<td>4GB eMMC</td>
<td>MicroSD card slot</td>
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<tr>
<td>Display</td>
<td>No</td>
<td>HDMI</td>
<td>DSI</td>
<td>No</td>
<td>No</td>
<td>HDMI</td>
</tr>
<tr>
<td>Camera</td>
<td>No</td>
<td>CSI-2</td>
<td>CSI-2</td>
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<td>No</td>
<td>CSI-2</td>
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<td>Audio</td>
<td>USB 2.0</td>
<td>USB 2.0</td>
<td>3.5mm Analog</td>
<td>3.5mm Analog</td>
<td>3.5mm Analog Output</td>
<td>USB 2.0</td>
</tr>
</tbody>
</table>
Key Audio Trend

• Voice Control
  - Key growth market in the consumer space
  - 4 Key Smart-Home ecosystems to follow:
    ▪ Amazon Alexa
    ▪ Google Assistant (Google Home)
    ▪ Apple Siri/HomeKit
    ▪ Microsoft Cortana
Voice System with Software Front End

Beamforming, Dereverberation, AEC
Trigger Phrase Detection
Voice Recognition/Control

Microphone Array

i.MX 7D System

Voice Assistant

Advantages:
- More flexible and upgradeable
- Reduced system cost
Google Assistant Built In Voice System

1st Pass
“Okay Google”
Hot Word Detection

Audio Buffer

Beamforming Dereverberation
AEC (Cloud Neural Net)

Voice Assistant

Information and/or Action

Accessory

i.MX 6UL/7D

One or two Digital Microphones

Google Cloud Processing

AEC = Acoustic Echo Cancellation;
Important distinction: Far field (across the room) vs Near field (ie. on a headset)
Optimized Voice Control

Beamforming Dereverberation AEC → Trigger Phrase/Hot Word Detection → Embedded Voice Control (ASR) Optional → Cloud Voice Assistant

Digital Microphone array, one or more

Front End
i.MX S/W in Development
(for “far-field”)

Back End
e.g. Sensory

Processing In the Cloud
(“Ecosystem Play”)

MPU with software

AEC = Acoustic Echo Cancellation; Important distinction: Far field (across the room) vs Near field (ie. on a headset)
Embedded Voice Control

- Voice processing by 3rd parties; Sensory specializes on ARM Cortex-M4 support
- Typically supports 10 to 20 control commands
- Speaker independent, with several languages available
- Does not need a network connection, typically fast to respond
- May be combined with cloud based voice assistant(s)
Amazon Alexa Developer Options

Early Access Developer Program

Amazon Alexa 7-Mic Far-Field Dev Kit

Designed to help commercial device manufacturers easily create far-field voice experiences, this development kit features the same 7-mic project and technology for “Alexa” wake word recognition, beam forming, noise reduction, acoustic echo cancellation, and larger capabilities found in the Amazon Echo. The solution is supported by leading chip providers, enabling device manufacturers to quickly integrate Alexa voice capabilities into their products.

• Far-Field Voice Recognition
• Alexa wake word technology
• Compatible with leading chipsets, including NXP

Request an Invite

The Amazon Alexa 7-Mic Far-Field Dev Kit is available to commercial device manufacturers through an exclusive, invite-only program. Request an invite by clicking the invitation below and completing the request form.


Developer Program

Hands-Free Solutions

Conexant 2-Mic Hands-Free Dev Kit for Amazon AVS

$299.00

Microsemi AcuEdge™ Development Kit for Amazon AVS

$299.00

Required Components:

Hardware
• Conexant 2/4 Mic or MicroSemi 2 Mic
• i.MX6UL/7D Pico development board
Software
• Alexa Voice Services (AVS)
Amazon Alexa & Google Assistant Reference Platform
Amazon Alexa "Echo" Reference Design

AEC = Acoustic Echo Cancellation;

Important distinction: Far field (across the room) vs Near field (ie. on a headset)
Voice System with Hardware Front End

Voice Assistant

Microphone Array

Audio Codec with DSP

i.MX 7D System

Advantages:
- Available now
- Does not require additional i.MX throughput
<table>
<thead>
<tr>
<th>Voice and Audio Functionality</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexa only</td>
<td>Front end + i.MX 6ULL (800-900 MHz)</td>
</tr>
<tr>
<td>Google Assistant only</td>
<td>i.MX 6ULL (800-900 MHz)</td>
</tr>
<tr>
<td>Google Assistant and Google Cast</td>
<td>i.MX 7D (1.2 GHz)</td>
</tr>
<tr>
<td>Combo Alexa and Google Assistant</td>
<td>Front end + i.MX 6ULL (800-900 MHz)</td>
</tr>
<tr>
<td>Combo Alexa, Google Assistant and Google Cast</td>
<td>Front end + i.MX 7D (1.2 GHz)</td>
</tr>
<tr>
<td>NXP Processor</td>
<td>Voice Front End</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Pico-i.MX6UL/7D</td>
<td>7 microphones</td>
</tr>
<tr>
<td></td>
<td>Conexant 2</td>
</tr>
<tr>
<td></td>
<td>microphones</td>
</tr>
<tr>
<td></td>
<td>Knowles 1</td>
</tr>
<tr>
<td></td>
<td>microphone</td>
</tr>
<tr>
<td></td>
<td>Not Needed</td>
</tr>
</tbody>
</table>
DIGITAL TO PHYSICAL CONVERSION
Collaborative Robots need to see

*Increased need of graphic computing and vision*

GPU can do these things really really fast…

- Dense Linear Algebra
- Sparse Linear Algebra
- Spectral Methods
- N-Body Methods
- Structured Grids
- Unstructured Grids
- Map-Reduce & Monte Carlo
- Combinational Logic
- Graph Traversal
- Dynamic Programming
- Backtracking
- Probabilistic Graphical Models
- Finite State Machines
- more…

Which gives you this…

- Gesture Recognition
- Motion Processing
- Computer Vision
- Terrain Generation
- Augmented Reality
- Speech Recognition
- Cryptography
- much more…bounded only by imagination
Multi-Domain Applications

• Automotive eCockpit
• Supervised education tablets for children
• Connected and protected medical devices
• Safeguarded Point-Of-Sale terminals
• Autonomous robotic and industrial devices
• Multiple domain security systems
eCockpit Design as example

Single Supplier for All Graphics and Display Processing

Infotainment Display

Cluster Display

HUD

Eliminated:
- ECU housing and design NRE
- 10 layer cluster PCB
- 5-6 power supplies / circuit protection
- Applications Processor & Software
- 256MB DDR / 128MB NOR
- Cluster VMCU + ASIL B OS
- Speaker
- CAN Tx/Rx and harness
- Debug ports and hardware
- Discrete components and connectors

Additional e-Cockpit ECU requirements:
- Advanced Applications Processor (Delta from Infotainment SoC)
- ASIL B ARM Hypervisor
- Additional DDR / Additional program NVM
- Cluster plus optional HUD LVDS Serializers
- Cluster plus optional HUD Deserializers
DATA AS AN ASSET
Functional Security in Embedded Microcontroller

**Trusted Execution**
- **Code I/P Protection**
  - Internal Memory Protection (SRAM/Flash)
  - External Memory Protection (BEE/HAB)
  - Trusted Execution Environment (TEE)
  - Resource Domain Controller (RDC)
- **Debug Port Protection**
- **Authentication**
  - Secure Software Updates
  - Device Verification & Authentication
- **Secure Boot**

**Crypto Acceleration**
- **Symmetric Encryption**
  - DES/DES3, AES, ARC4
- **Asymmetric Encryption**
  - RSA, ECC
- **Hashing**
  - CRC, MD5, SHA
- **True Random Number Generation**
- **Security Protocols**
  - SSL, HomeKit, Thread

**Tamper Resistance**
- **Tamper Detection**

**Physical:**
- Enclosure Intrusion
- Drilling
- Probing

**Environmental:**
- Voltage
- Temperature
- Frequency

**Zeroizable Secure Storage**
# Kinetis KL8x to K8x

**World’s most secure ARM® Cortex®-M based MCUs**

<table>
<thead>
<tr>
<th>Kinetis KL8x MCU</th>
<th>Kinetis K8x MCU</th>
</tr>
</thead>
<tbody>
<tr>
<td>72MHz ARM Cortex-M0+</td>
<td>150MHz ARM Cortex-M4</td>
</tr>
<tr>
<td><strong>Advanced Security</strong></td>
<td><strong>Advanced Security</strong></td>
</tr>
<tr>
<td>Secure RAM &amp; Boot, Memory Protection Unit, Low Power Trusted Crypto. Engine (DES/3DES/AES/RSA), Tamper Detection, ISO7816-3 EMVSIM, Random Number Generator</td>
<td>Crypto. Acceleration Unit, On-the-Fly Decryption for external memories</td>
</tr>
<tr>
<td>128/96KB Flash/SRAM, USB, FlexIO, QuadSPI (XIP), 121 MBGA / 80 LQFP</td>
<td>256/256/16KB Flash/SRAM/Cache, USB, FlexIO, QuadSPI (XIP), SDRAM, SD/eMMC, FlexBus, 121 XFBGA / 100 LQFP</td>
</tr>
<tr>
<td>Hardware and software compatibility with PCI-certified enablement</td>
<td></td>
</tr>
</tbody>
</table>

**Kinetis KL8x MCU**

- Secure RAM & Boot
- Memory Protection Unit
- Low Power Trusted Crypto Engine (DES/3DES/AES/RSA)
- Tamper Detection
- ISO7816-3 EMVSIM
- Random Number Generator
- 128/96KB Flash/SRAM, USB, FlexIO, QuadSPI (XIP)
- 121 MBGA / 80 LQFP

**Kinetis K8x MCU**

- Crypto. Acceleration Unit
- On-the-Fly Decryption for external memories
- 256/256/16KB Flash/SRAM/Cache
- USB, FlexIO, QuadSPI (XIP)
- SDRAM, SD/eMMC, FlexBus
- 121 XFBGA / 100 LQFP

**Performance**

- + Performance
- + Memory
- + Crypto throughput
- + Ext. memory expansion & protection

**Ext. memory expansion & protection**

- Hardware and software compatibility with PCI-certified enablement
Reference Design – QR Decoder

QR decoder can quickly scan and decode both 1D and 2D barcode information. It is based on the NXP tower system, utilizes the Kinetis SDK FlexIO camera driver to bring in image data and display the decode result on TWR-LCD and/or a terminal.

**Supported Symbologies:**
- QR (Quick Response Code)
- UPC-A UPC-E
- EAN8 EAN13 EAN128
- ITF-6 ITF-14 Interleaved 2 to 5
- CODE39 CODE128
- CodaBar
LPC800 MCU Series

- Low-power Cortex-M0+ based solution
- LPC800 provides
  - ADC for analog battery monitor functionality
  - SCTimer/PWM handles IR/RF signal generation without CPU intervention
  - UART and SPI peripherals for interface to external RF frontends
  - GPIO for interface to
    - LED and LCD control
    - Pushbuttons/switches

Industrial RFID Tag & Reader

Smart Home Remote Control
SECURE IOT GATEWAY & EDGE
**Integrated Development Experience (IDEx) for General Purpose IoT Systems**

- Includes Pre-Configured Modular IoT Gateway and Modular Edge Node Platform

**Modular IoT Gateway**
- Modular IoT Gateway Base board
- i.MX6UL SOM
- Wi-Fi/BT/BLE 4.1
- Thread/ble Radio
- ZigBee Radio
- NFC Reader
- A7x Secure Element

**Modular Edge Node Platform (MENP)**
- Simple Edge Node Base board
- ZigBee Radio
- Thread/ble Radio
- NFC Tag
- RGB Click Module

- Includes Connectivity and Security Software

**Modular IoT Gateway**
- Linux OS and component drivers (BSP)
- Connectivity and Cloud Protocols
- NFC Connectivity and Cloud commissioning
- Secure Over-The-Air Programming
- Application software

**Modular Edge Node Platform (MENP)**
- FreeRTOS with SDK peripheral drivers
- Connectivity Stacks (ZigBee, Thread)
- NFC Connectivity commissioning

**Shipping TODAY as NXP Part-Number:** SLN-IOT-GPI
Modular IoT Framework: **Software Architecture**

**Cloud Services**  
AWS, Azure, Watson, Enterprise, etc

- Real-Time Data Management
- Device Management
- Analytics

**NXP IoT Gateway**

- Fog Application
- Gateway Framework
- Protocol Stacks
- Device Drivers
- Operating System

**NXP IoT Edge-node**

- Application
- Protocol Stacks
- Device Drivers
- Operating System

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Complete Security, Connectivity, Management, Cloud and Application Software to create compatible IoT Gateway and Edge-nodes
Modular IoT Gateway: Overview

Hardware Modules

Radio Modules
- KW2xD Thread
- KW41Z Thread
- JN5169 Zigbee
- JN5179-001-M1x Zigbee

Processor Module
- i.MX6UL SOM

NFC Module
- PN7120

i.MX6UL SOM on App specific base board

Ethernet / 2*USB ports / Wifi SMA antenna
USB debug / uSD card slot / 5VDC-3A

PN7120 Explorer Board (NFC)

Kinetis KW41Z Module on Mezzanine (Thread)

JN5169 Module on Mezzanine (ZigBee)

NFC Module
Modular Edge Node Platform and Modules: Overview

Hardware Modules

Radio Modules
- KW2xD Thread
- KW41Z Thread
- JN5169 ZigBee
- JN5179-001-M1x ZigBee

Sensor/Actuator Add-on Modules

Radio Module

Add-on Module Socket

Power Supply

NTAG Connector

Programming and Debug

Radio Module Socket

Add-on Module Socket

TAG NFC/I2C

IDEx for General Purpose IoT System Use Case: Lighting Control

Amazon Alexa → Cloud IoT → Cloud EC2

Cloud EC2

Gateway

Edge Node Lighting Grid

8x8 Animated Thread/ZigBee

Mobile App

Wi-Fi, Wi-Fi/4G, Mqtt

EC2

HTTP Rest, API

Wireless Connectivity through Router/AP

Edge Node

32* Thread

32* ZigBee
SECURE CONNECTIONS FOR A SMARTER WORLD