IoT Gateway Solution

IOT-GATEWAY-SOLUTION

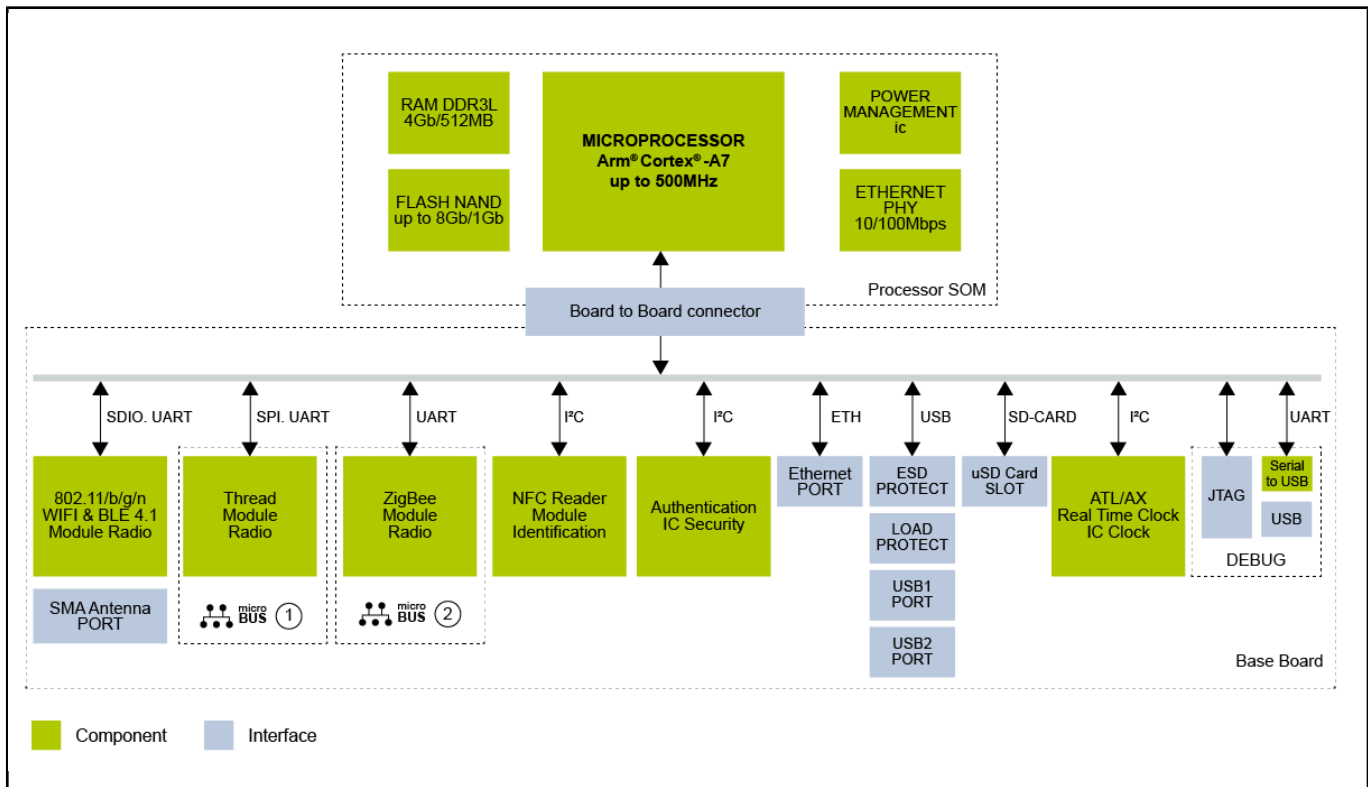**Archived**

Last Updated: Jun 12, 2023
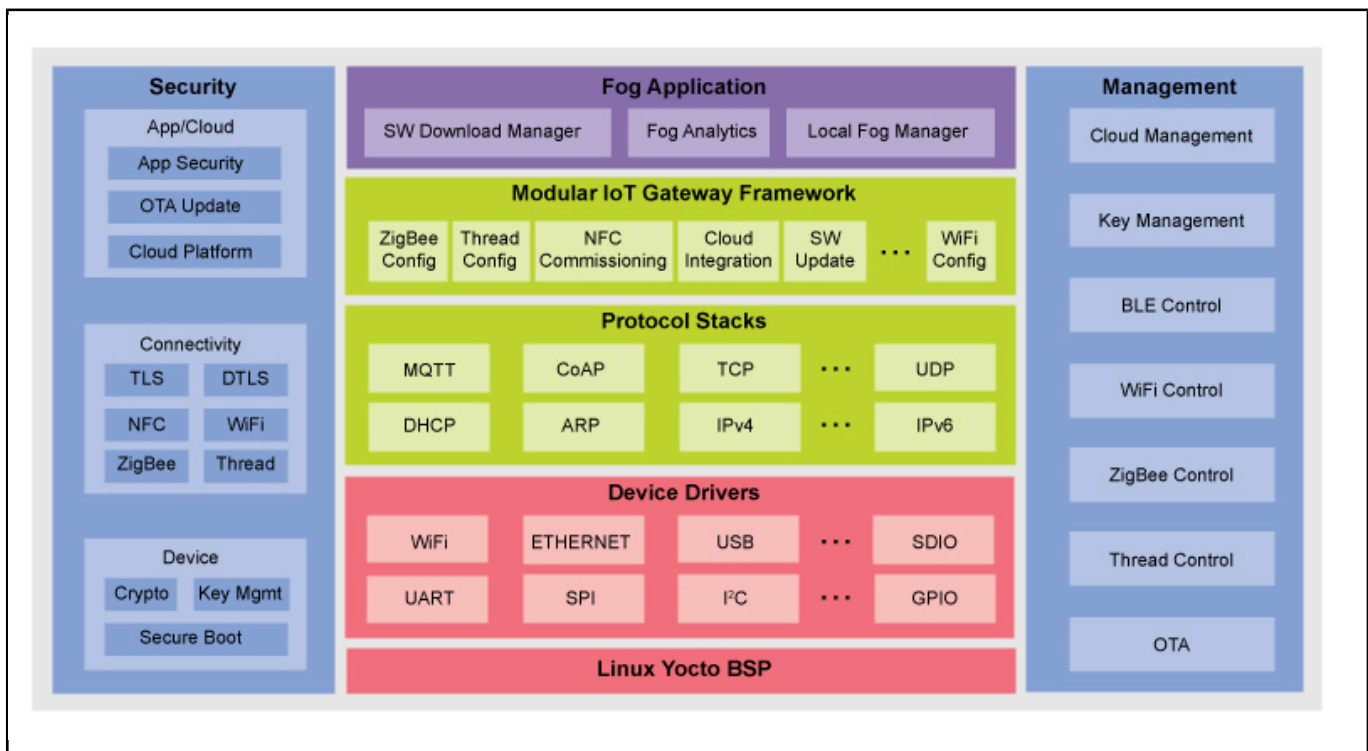
The IoT Gateway Solution aims to accelerate IoT development with preintegrated, comprehensive, and fully documented out-of-the-box guidance and support.

It includes the NXP Modular IoT Gateway and Modular Edge Node, which are tested and verified for ZigBee® and Thread® connectivity, as well as secure cloud communications through Wi-Fi, Ethernet and cellular, enabling access to cloud services.
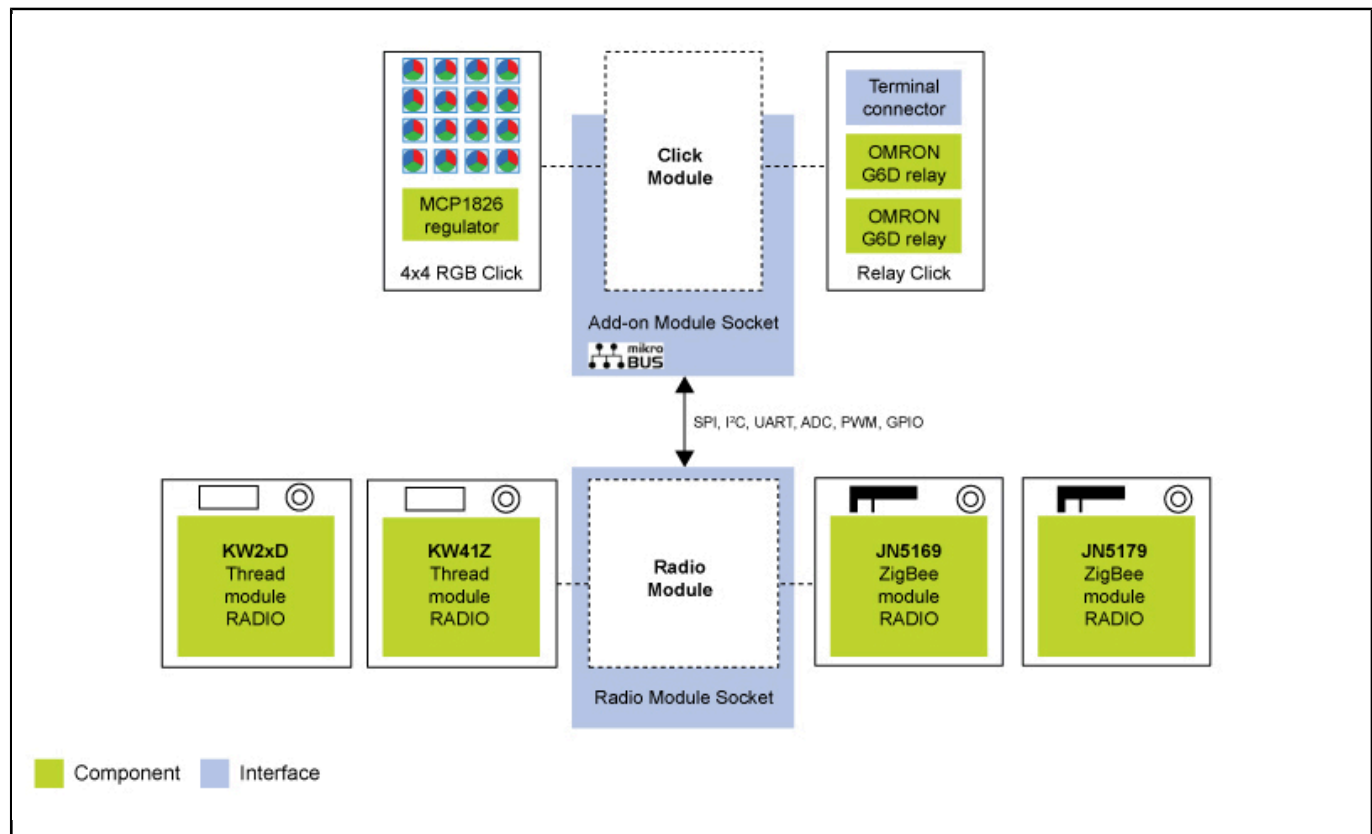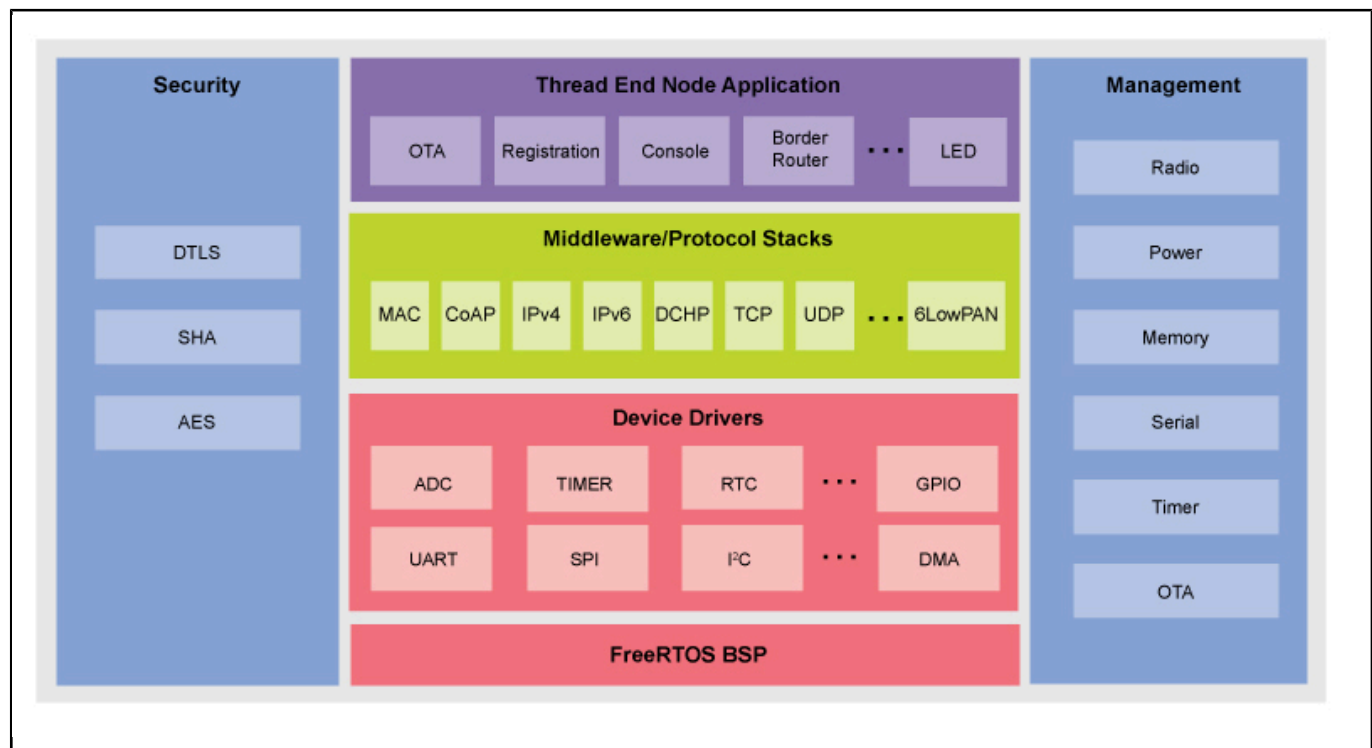
IoT Gateway Hardware Block Diagram

Processor SOM

- RAM DDR3L 4Gb/512MB
- MICROPROCESSOR Arm® Cortex®-A7 up to 500MHz
- POWER MANAGEMENT ic
- FLASH NAND up to 8Gb/1Gb
- ETHERNET PHY 10/100Mbps

Board to Board connector

Base Board

Interface	Component
SDIO. UART	802.11/b/g/n WIFI & BLE 4.1 Module Radio
SPI. UART	Thread Module Radio
UART	ZigBee Module Radio
I²C	NFC Reader Module Identification
I²C	Authentication IC Security
ETH	Ethernet PORT
USB	ESD PROTECT / LOAD PROTECT / USB1 PORT / USB2 PORT
SD-CARD	uSD Card SLOT
I²C	ATL/AX Real Time Clock IC Clock
	JTAG / Serial to USB / USB (DEBUG)
UART	

- SMA Antenna PORT
- microBUS ①
- microBUS ②

Legend: ■ Component   ■ Interface

IoT Gateway Software Block Diagram

Security
- App/Cloud
  - App Security
  - OTA Update
  - Cloud Platform
- Connectivity
  - TLS / DTLS
  - NFC / WiFi
  - ZigBee / Thread
- Device
  - Crypto / Key Mgmt
  - Secure Boot

Fog Application
- SW Download Manager
- Fog Analytics
- Local Fog Manager

Modular IoT Gateway Framework
- ZigBee Config
- Thread Config
- NFC Commissioning
- Cloud Integration
- SW Update
- ...
- WiFi Config

Protocol Stacks
- MQTT / CoAP / TCP / ... / UDP
- DHCP / ARP / IPv4 / ... / IPv6

Device Drivers
- WiFi / ETHERNET / USB / ... / SDIO
- UART / SPI / I²C / ... / GPIO

Linux Yocto BSP

Management
- Cloud Management
- Key Management
- BLE Control
- WiFi Control
- ZigBee Control
- Thread Control
- OTA

IoT Edge Hardware Block Diagram

4x4 RGB Click
- MCP1826 regulator

Click Module
Add-on Module Socket
mikroBUS

Relay Click
- Terminal connector
- OMRON G6D relay
- OMRON G6D relay

SPI, I²C, UART, ADC, PWM, GPIO

KW2xD Thread module RADIO

KW41Z Thread module RADIO

Radio Module
Radio Module Socket

JN5169 ZigBee module RADIO

JN5179 ZigBee module RADIO

Component | Interface

IoT Edge Software Block Diagram

Security
- DTLS
- SHA
- AES

Thread End Node Application
- OTA
- Registration
- Console
- Border Router
- ...
- LED

Middleware/Protocol Stacks
- MAC
- CoAP
- IPv4
- IPv6
- DCHP
- TCP
- UDP
- ...
- 6LowPAN

Device Drivers
- ADC
- TIMER
- RTC
- ...
- GPIO
- UART
- SPI
- I²C
- ...
- DMA

FreeRTOS BSP

Management
- Radio
- Power
- Memory
- Serial
- Timer
- OTA

View additional information for IoT Gateway Solution.

www.nxp.com