

## **Global launch of "OpenBlocks® IoT VX2" Plat'Home's Intelligent Edge IoT Gateway**

**Plat'Home IoT Gateway Software "FW3.1" is new ready and supports Microsoft Azure IoT Edge**

May 7, 2018

TOKYO- Plat'Home Co., Ltd. (Securities Code: TSE 2nd Section 6836, Head office: Chiyoda-ku, Tokyo, Japan, President: Tomoyasu Suzuki, hereinafter Plat' Home) today announced the launch of global version of OpenBlocks® IoT VX2, an intelligent gateway compatible with Microsoft Azure IoT Edge.

OpenBlocks® IoT VX2 is a gateway product with the high functionality and reliability required for the actual operation of the IoT system. This product is the latest model of OpenBlocks® Family for IoT purposes. OpenBlocks® has so far exceeded 100,000 units in cumulative shipments, and has been widely adopted for social infrastructures, and has earned the high reputation and trust by the customers including telecommunications carriers.



OpenBlocks® IoT VX2 is equipped with Plat'Home's powerful IoT Gateway Software called "FW3.1", which can respond flexibly to the need of intelligent IoT together with Microsoft Azure. The need is expected to expand significantly in various countries around the world.

Tomoyasu Suzuki, President of Plat'Home Co., Ltd, quoted, "Plat'Home is pleased to announce the OpenBlocks® IoT VX 2 which realizes edge computing. The number of devices connected to the Internet is increasing day by day, I am sure OpenBlocks IoT VX 2 together with Microsoft Azure IoT Edge, realize true intelligent cloud/ intelligent edge, will be products that will support future IoT market. Plat'Home will continue to actively offer new products and services to contribute to the development of the IoT market. Lastly, we are also planning to add Windows 10 IoT Enterprise preinstalled model, once evaluation is completed after GA of Azure IoT Edge."

Takeshi Shobuya, Senior Officer, Director, IoT Device Experience Sales, Microsoft Japan quoted "Microsoft is delighted to the launch of Plat'Home's Intelligent Edge IoT Gateway "OpenBlocks® IoT VX2" to the global market.

With the launch of "OpenBlocks® IoT VX2" supporting Azure IoT Edge to the global market, will now be able to provide intelligent cloud capabilities of Microsoft Azure to execute on the edge device which we are sure to accelerate utilization of IoT in various scenarios.

Microsoft will continue to deepen collaboration with Plat'Home and will support customers' business transformation through the revitalization of the IoT market through intelligent cloud and intelligent edges around the world."

## **OpenBlocks® IoT VX2 Features**

### **1. Plat'Home IoT Gateway Software FW3.1**

FW3.1 is equipped with Plat'Home Data Handling Module System (PDHMS) which is a message handling system supporting flexible and high-speed communication between the device and the cloud. PDHMS is a system designed to realize inter-process communication flexibly and at high speed between application modules inside the IoT Gateway. It enables implementation of application modules of various functions on the edge side, realizing flexible and high performance IoT edge computing. PDHMS supports multi-devices and multi-clouds and is capable of responding flexibly to a variety of the customer's IoT system need.

### **2. Docker support**

FW3.1 supports the Docker Container as a standard. It can build and operate a scalable and seamless IoT system throughout the operational environment by supporting Docker, which can develop, release and execute cross-platform applications regardless of edge or cloud.

### **3. Microsoft Azure IoT Edge support**

FW3.1 supports Azure IoT Edge which is an intelligent edge offering of Microsoft Azure. Azure IoT Edge manages and deploys applications from the cloud to run them locally on the FW3.1. By using Azure IoT Edge, the customer can use various intelligent services such as Azure Machine Learning (AML), Azure Artificial Intelligence (AI), Azure Stream Analytics (ASA), Azure Functions etc. which are provided by Microsoft Azure. You can also write your own code using C, Java, Node.js, Python and .NET.

Also, Azure IoT Edge can be also preinstalled to meet requirements from customers under appropriate license from Microsoft.

### **4. Gateway Management UI**

FW3.1 has a Management UI which will be visually manageable. With this Management UI, the customer can connect sensors and devices, access various cloud services, deploy and allocate Docker containers resources, install and monitor Microsoft Azure IoT Edge, and update IoT Edge Runtime Module.

### **5. Security functions**

OpenBlocks® IoT VX2 realizes the security functions and the attack immunity in both software and hardware so that it can withstand the deployment and security operation in the actual environment. By default, Secure Boot is supported, and the hardware is also equipped with TPM 2.0 as a hardware security module (HSM). This realizes secure operation that can cope with the situation where the gate is deployed massively in the actual environment.

## 6. Service Subscription

To support long-term operation of this product, Plat'Home will provide annual subscription services. The customers who subscribe to the service can receive our support for the product over the long term, together with the notice at the time of version upgrade. In the future, additional supplementary services such as SaaS type service for integrated remote management of the IoT gateway will be added.

## Product Details

### 1. Hardware

The product comes fully equipped with hardware performance and interfaces required for IoT edge computing, including a high-performance 64-bit CPU (1.33 GHz dual core), high capacity built-in storage (32 GB) and high capacity RAM (2 GB), in addition to two Ethernet ports.

Wide array of communication interface for IoT that support variety of devices, sensors and networks

#### Device communication interface

Equipped with a wide range of device communication interfaces to allow communication between IoT devices such as sensors and IoT gateway.

GPIO/I2C (Internal pin header)

Audio (Internal pin header)

USB 3.0

UART (USB Serial Console, RS-485)

CAN (FTDI)

BT 4.0 (BLE)

#### Network communication interface

Equipped with wired and wireless communication interfaces for communication between IoT gateway and the cloud.

2 x Gigabit-Ethernet

WLAN (802.11a/b/g/n/ac)

Compact, light-weight and robust and design for IoT

Ultra-small size form factor with a chassis size of 91.9 x 114.8 x 25 mm

Ultra-light weight: Chassis weight: About 160 g.

Fan-less, semi-closed structure: Dust-proof performance IP40

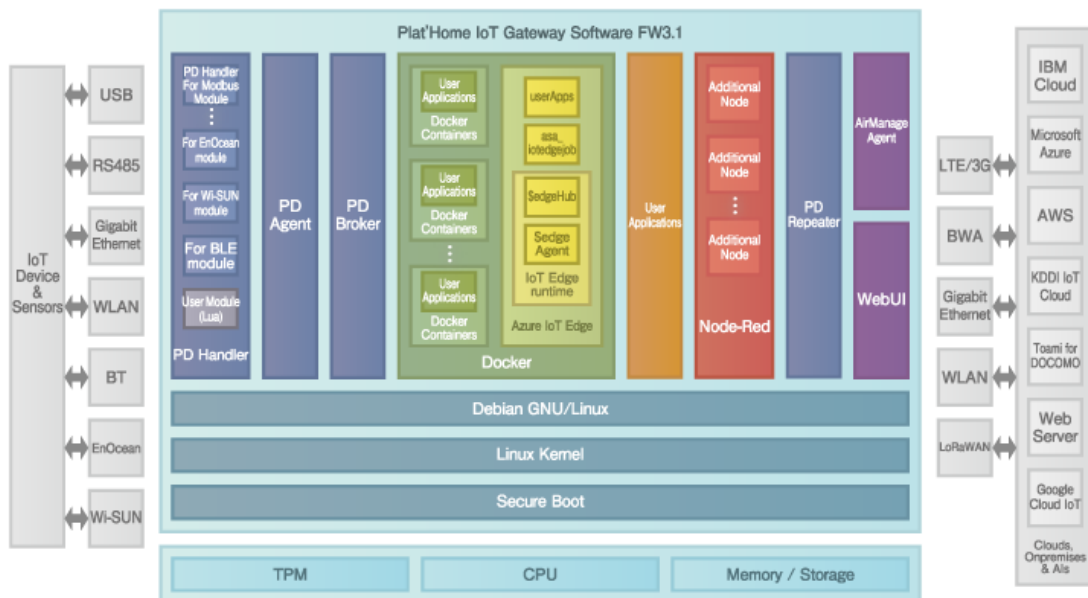
Environmental resistance performance: -20°C to +60°C (when mounted with heat radiation and installation bracket [standard attachments]); -20°C to +40°C (without said brackets)

## 2. Software

OpenBlocks® IoT VX2 comes with pre-integrated Plat'Home IoT Gateway Software "FW3.1." offering that fully supports intelligent IoT edge computing including sensor, device and various cloud service connectivity settings, Docker container deployment and allocation resource setting as well as Microsoft Azure IoT Edge Monitoring and Runtime updates via visually operable Management UI.

Additionally, it facilitates direct data communication between Plat'Home Gateway Data Handling Module System (PDHMS) and Azure IoT Edge enabling data collection from the IoT device and bidirectional communication with the cloud. It also adds near-real-time data analysis capability closer to IoT leaf devices to enrich big data analytics performed in the cloud.

**Plat'Home IoT Gateway Software FW3.1 Architecture Diagram**



## **(1) PDHMS (Plat'Home Data Handling Module System)**

The system architecture is designed to enable flexible and high-speed inter-process communication of application modules inside an IoT Gateway. Application modules with various functions can be installed on the edge side, thereby ensuring flexible edge computing.

### **PD Handler BLE/UART**

A group of applications to acquire data from sensors and other IoT devices using BLE or UART (serial communication, etc.). They support a wide variety of IoT devices by default, while also supporting extensions of IoT device control applications for Lua language\* by users.

\*Lua language: A script language featuring high-speed operations and easiness of integration.

### **PD Handler Modbus Client/Server**

An application to control equipment using PLC (Programmable Logic Controller) and other Modbus protocol.

### **PD Repeater**

A communication application with cloud and web servers supporting two-way communication.

#### **Key supported services**

Azure IoT Hub (Two-way communication supported)/Azure Event Hubs  
AWS IoT (Two-way communication supported)/Amazon Kinesis  
Google IoT Core (Two-way communication supported)  
Watson IoT for Gateway/Watson IoT for Device (Two-way communication supported)  
Toami for DOCOMO  
KDDI IoT Cloud Standard  
PD Exchange (Two-way communication supported)  
General-purpose web server/General-purpose MQTT server (Two-way communication supported)

### **PD Agent**

An application to execute preset shell scripts, etc. by receiving control messages from cloud via PD Repeater.

### **PD Broker**

An application to distribute inter-process communication between the above-mentioned application modules to multiple modules.

## (2) Management UI

The web-based Management UI is equipped to carry out the searching of sensors and beacons along with their pairings, connection setups with cloud services from different service providers, and also the operation and setting of IoT communication functions from the web browser screen. When IoT goes live, knowledge of command lines is not required, which alleviates the engineering burden.

## (3) Docker management from Management UI

It supports Docker as an application execution environment. Docker containers can be used on OpenBlocks® IoT VX2 and controlled from the Management UI. In addition, it supports the function to deploy Docker images released on the Docker image sharing service Docker Hub, and to deploy from a self-constructed private Docker image registry, thereby enabling users to take advantage of a wide variety of Docker images. The Management UI can also deploy Docker containers, in addition to carrying out start, stop and resource allocations.

Key functions

- Deployment and deletion of Docker images
  - Downloading of Docker images from Docker Hubs
  - Downloading Docker images from private registries
- Start and stop of Docker containers
- Setup of allocated resources
- Indication of resource usage

### Docker Management UI screen

Container Name	CPU usage[%]	Memory usage	Memory usage[%]	Network I/O	Block I/O
pdex	0.14%	265.9MiB / 1.844GiB	14.08%	1.14kB / 0B	0B / 109MB
edgeHub	0.36%	70.26MiB / 1.844GiB	3.72%	195kB / 220kB	11.9MB / 860kB
tempSensor	0.11%	20.6MiB / 1.844GiB	1.09%	38.2kB / 93.7kB	32.8kB / 0B
nginx_container	0.00%	1.953MiB / 1.844GiB	0.10%	2.14kB / 0B	0B / 0B
EdgeASA	0.00%	0B / 0B	0.00%	0B / 0B	0B / 0B
edgeAgent	0.00%	33.47MiB / 1.844GiB	1.77%	30.9kB / 19.8kB	32.8kB / 1.85MB

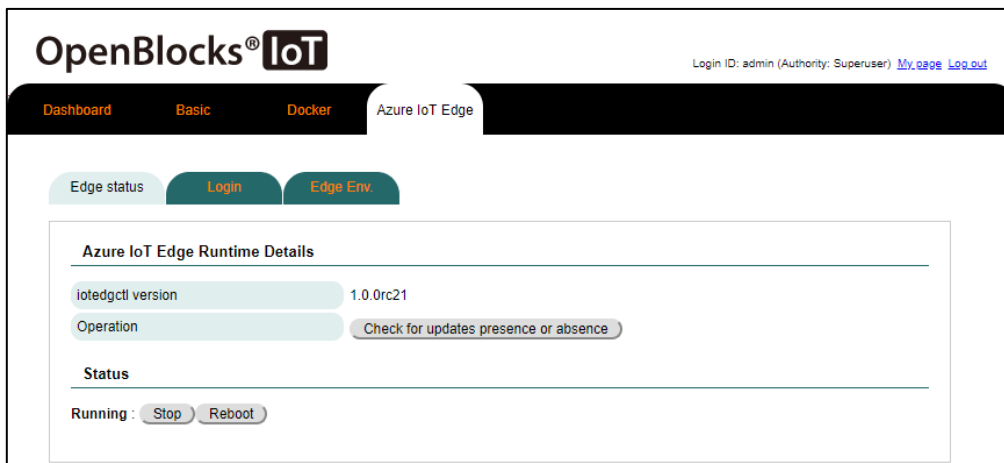
#### (4) Azure IoT Edge Management from Management UI

The IoT edge computing support software from Microsoft, Azure IoT Edge\*, is supported. Azure IoT Edge can run on OpenBlocks® IoT VX2, while the Management UI of OpenBlocks® IoT VX2 can monitor the status of Azure IoT Edge. Intelligent processes that were conventionally conducted via cloud, such as Azure Stream Analytics and Azure Machine Learning, can be executed on OpenBlocks® IoT VX2 on the edge side, thereby drastically reducing device latencies and substantially decreasing communication traffic of the entire system. In addition, as FW3.1 supports direct data linkage between PDHMS within the edge gateway and Azure IoT Edge, it can also, for example, analyze sensing data collected by a wide array of sensor devices that support OpenBlocks® IoT VX2, and it strongly supports IoT edge computing that takes advantage of Azure IoT Edge.

##### Key functions

- Status monitoring of Azure IoT Edge
- Deployment and deletion of Azure IoT Edge
- Start and stop of Azure IoT Edge
- Azure IoT Edge runtime update

#### Azure IoT Edge Management UI screen



## **(5) Node-RED on the Edge**

Node-RED is a programming tool that involves wiring together hardware devices, APIs and online services. From WEB UI, it can process data received from sensors and visually program it to be sent to a cloud service or take an action, allowing easy realization of edge computing for IoT. It can also employ additional functions for Node-RED that are provided by software and cloud service vendors, making the addition of various applications a relatively easy task.

## **3. Services**

In order to support the long-term operation of OpenBlocks® IoT VX2, a subscription service on an annual basis is available. This subscription service offers long-term software update notifications and support for product usage in order to constantly maintain systems that use OpenBlocks® IoT VX2.

### **Technical support**

Technical support for the product in installation, operation and maintenance will be available by the optional service.(\*1)

### **Notification for system update**

Notification for the software / system update information to a registered e-mail address.(\*2)

\*1: This service is offered as long as the customer uses FW3.1 with standard specifications. If the customer has customized FW3.1 by, for example, adding an application, the provision of this service may be refused.

\*2: Standard devices being supported are subject to this service. (The latest information of all supported devices is available from our website).



## Product Specifications

### Model name (Type number)/Price

Name: OpenBlocks® IoT VX2

Type number: OBSVX2

Reference price: Open

### Product specifications

#### CPU

Model: Intel Atom E3805 64-bit 1.33GHz two-core two-thread 1 MB L2 cache

Clock speed: 1.33 GHz (Dual core)

Built-in secondary cache: 1024 kB/Core

Main memory: On-board 2 GB (64-bit bus DDR3L)

Built-in storage: 32 GB (eMMC)

Additional storage: 1 x micro SD card slot

#### Wireless interface

BT 4.0 (BLE) + 2.1 EDR

WLAN (IEEE802.11a/b/g/n/ac)

#### Wired interface

USB (HOST): 1 x 3.0 (type-A)\*1

USB (Console): 1 x micro USB (type-B)\*1

Ethernet: 2 x 10BASE-T/100BASE-TX/1000BASE-T

RS-485: 1 x Half duplex (Wire range: AWG22)

Security: TPM 2.0 (Trusted Platform Module)

Measurements: 91.9 (W) x 114.8 (D) x 25 (H) mm (Excluding protrusions)

Weight: 160 g (Excluding accessories)

Power supply: 4.75 to 5.25 VDC (DC-jack)/10 to 48 VDC (Wide DC supply\*2)

#### Power consumption

Idling: AC adapter 5.5 W (11.2 VA)/Wide DC (with 48 V input) 4.0 W

At high load: AC adapter 9.0 W (16.9 VA)/Wide DC (with 48 V input) 7.5 W

Operational temperatures: -20°C to +60°C\*3

Authentication (WLAN/BT): JATE / TELEC

#### Compatible standards

PSE · VCCI Class A

IEC60950-1

FCC Part 15 Subpart B class A/UL 60950-1/CAN/CSA-C22.2 No. 60950-1

RED/RoHS

RTC backup time: 10 years

OS at time of shipment: Debian GNU/Linux (64-bit)

\*1 Supported cable length is less than 3 m.

\*2 When using this function, it is necessary to connect an external noise filter (NAC - 04 - 472 (COSEL)) or equivalent

\*3 When installing this product in an environment where the ambient temperature exceeds 40°C, please use the attached heat dissipation /installation bracket.

## Order receipt/Shipment schedule

Order requirement start: May 7, 2018

Shipment start: June 2018 (scheduled)

## Related URL

OpenBlocks® IoT VX2 Product information

<https://www.plathome.com/products/openblocks-iot-vx2/>

## About Plat'Home

Plat'Home is a major developer and manufacturer of micro-servers. Ever since its foundation in 1993, the company has supplied computers made in house to communication and network fields as a pioneer of Linux servers. The palm-top-size ultra-small Linux server, OpenBlocks®, has been adopted by a wide range of domains to support Japanese social infrastructure, including not only major communication operators but also logistics, transportation, finance, the energy industry and public agencies. It has also been attracting attention in numerous fields that are anticipated to drastically grow in the near future, such as M2M and IoT (Internet of Things).

## Inquiries regarding this announcement

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