



Application Note

Portwell, Inc.



Portwell Intel® IoT Gateway Application Note

Situation

Intelligent gateways perform a vital role in the Internet of Things (IoT) by collecting sensor data at the network edge, then acting as a filter to analyze and normalize the data for sharing through the network and into the cloud.

Intel® is developing a family of IoT gateway designs that enable connectivity between new and legacy devices by integrating technologies for networking, embedded control, enterprise-grade security, and easy manageability.

Portwell brings many years of embedded computing expertise in the industrial automation, network security and medical equipment markets with their versions. Intel® IoT Gateway designs many of which include the Wind River Intelligent Device Platform™ XT and McAfee Embedded Control™ security technologies.

Challenge

While general-purpose or standard processors are popular for running applications in deeply embedded systems and subsystems, they typically aren't optimized enough in terms of power, heat, and performance for dedicated tasks like those required to support IoT applications.





Solution

Portwell's PI-81AO is a small form factor embedded system board which uses the Intel® Quark™ SoC X1000 Industry/Energy Reference Design platform. The Intel® Quark™ SoC, a single-core SoC product featuring high levels of I/O integration and low power consumption. This platform's security and manageability features make it ideally suited for the IoT and for the next wave of cost-effective intelligent connected devices.

The PI-81AO delivers the small size, low heat and very low power consumption required for many IoT gateway applications. As an Intel® IoT Gateway solution, it comes pre-loaded with comprehensive communications and security solutions from Wind River and McAfee to provide seamless and secure connectivity between devices and the cloud. The solution features an open architecture and a development environment that supports rapid application and service differentiation.

The PI-81AO adopts the first product in the Intel® Quark™ SoC line, the single-core 32 nm X1000 SoC with a clock rate of up to 400 MHz. The system includes several interfaces, including dual 10/100 Fast Ethernet, one USB 2.0 host port, one USB 2.0 device port, and 8-channel analog-to-digital convertor inputs. There are 512 kilobytes of on-chip embedded SRAM and an integrated DDR3 memory controller which supports up to 2GB@800MTs). The board can be ordered with an optional WiFi or Wireless module.

IoT Gateway Application Concept

Consumers can monitor or control their smart energy devices or home automation systems via smart-phones or tablets.

A powerful Intel® Quark™ SoC running an OS is typically used as the host which enables a wide

range of software and firmware customization. It also enables the IoT Gateway to manage communications, data processing and applications locally instead of relying on intelligence in the cloud.



- ※ In the field of healthcare, the IoT can improve access to care, increase the quality of care and most importantly reduce the cost of care
- ※ For the smart home, the IoT can connect to the smart meter and extend to a wide number of systems that can operate with each other automatically and/or be monitored and controlled by human operators at control centers or via the cloud
- ※ For the factory, the IoT can connect factory equipment, linking a wide number of systems for monitoring and control by human operators at control centers or via the cloud, delivering greater efficiency and competitiveness.

About Portwell

Portwell, Inc., (www.portwell.com.tw), a world-leading innovator in the Industrial PC (IPC) market, provides a complete range of industrial products, including PICMG 1.0/1.3, COM Express & Q7 Modules, and Industrial M/B and system solutions—all delivered with advanced quality and service. Portwell serves customers in embedded markets such as automation, transportation, gaming and medical technology.



Portwell is a Premier member of the Intel® Intelligent Systems Alliance. From modular components to market-ready systems, Intel and the 350+ global member companies of the Alliance provide the performance, connectivity, manageability, and security developers need to create smart, connected systems. Close collaboration with Intel and each other enables Alliance members to innovate with the latest technologies, helping developers take a leading role in the rise of intelligent systems. Learn more at: intel.com/go/intelligent-systems-alliance.

For More Information

www.portwell.com.tw



Portwell, Inc. (Headquarters)

No. 242, Bo'Ai St., Shu-Lin Dist,
New Taipei City 238, Taiwan
Tel: +886-2-77318888
Fax: +886-2-77319888
E-mail: info@portwell.com.tw
<http://www.portwell.com.tw>

Americas

American Portwell (Fremont, California)

44200 Christy St. Fremont, CA 94538,
USA
Tel: +1-510-403-3399
Fax: +1-510-403-3184
E-mail: info@portwell.com
<http://www.portwell.com>

Portwell Latin America (Brazil)

Av. Paulista, 1274 - 13 andar, CEP
01310-200, Sao Paulo
Tel: +55(11) 2309-3513
<http://www.portwell.com.tw>

Portwell India Technology

2nd Floor, 5M-665, 5th Main Road,
OMBR Layout, Banaswadi, Bangalore
-560043, India
Tel: +91-80-41684255
E-mail: info@portwell.in
<http://www.portwell.in>

China

Beijing Portwell

4F, Building 5, Qunying Zone,
Chuangye Rd. 8, Shangdi, Haidian
District, Beijing 100085, China
Tel: +86-10-8270-1616
Fax: +86-10-8270-0606
E-mail: info@portwell.com.cn
<http://www.portwell.com.cn>

Shanghai Portwell

5F, 507/516, 280 Song Wei, North
Road, Songjiang District, Shanghai,
201613, China
Tel: +86-21-6772-2025
Fax: +86-21-6772-2027
E-mail: info@portwell.com
<http://www.portwell.com.cn>

Shenzhen Portwell

15A Xinhai Building, Nanshan
Road, Nanshan District Shenzhen
518000, China
Tel: +86-755-8621-7695
Fax: +86-755-8617-2084
E-mail: info@portwell.com
<http://www.portwell.com.cn>

Europe

European Portwell

Haverstraat 10,
Nieuw-Vennep, 2153 GB,
Netherlands
Tel: +31-252-620790
Fax: +31-252-621325
E-mail: info@portwell.eu
<http://www.portwell.eu>

Portwell Embedded Logic

An Krot 25-27, D-83123
Amerang, Germany
Tel: +49-8075-91-4400
Fax: +49-8075-91-4409
E-mail: info@portwell.eu
<http://www.embedded-logic.de>

Portwell (UK) Ltd.

Office TH2
Trident House, Trident Park Basildon
Hill Road, Didcot, OX11 7HJ, UK
Tel: +44(0)1235-750760
Fax: +44(0)1235-750761
E-mail: info@portwell.co.uk
<http://www.portwell.co.uk>

Japan

Portwell Japan, Inc. (Tokyo)

〒101-0042 Showa Kanda Bldg,
10-2 Kanda Higashi Matsusita-cho
Chiyoda-ku, Tokyo, Japan
Tel: +81-3-5298-8071
Fax: +81-3-5298-8072
E-mail: info@portwell.co.jp
<http://www.portwell.co.jp>

Portwell Japan, Inc. (Osaka)

〒532-0004 Ste.501 Nippo Shin-Osaka
Dai-2 Bldg, 1-8-33 Nishi-Miyahara,
Yodogawa-ku Osaka Japan
Tel: +81-6-4807-7721
Fax: +81-6-4807-7720
E-mail: info@portwell.co.jp
<http://www.portwell.co.jp>