Embedded Linux & Android Ready ARM Solutions
Accelerating Your ARM Project Development

- Unified BSP
- Standardized Hardware
- Integrated Peripherals
- Trusted Ecosystem

Software Ecosystem Partners

- Performance Tuning
- Build Engine
- Vertical AP
- Driver Porting
- Custom OS
- Advantech Loader
- Standardized BSP
- Longevity BSP Support

Standardized ARM Platform

Enabling an Intelligent Planet

www.advantech.com
The Key Factors for ARM Business Success

ARM technology is leading the revolution in the IoT era due to its cost effectiveness and compact size. Back in 2010, there were a diverse variety of hardware platforms and software services available to the embedded market which made platform unification and version control difficult. To introduce ARM solutions to the world in an easy, quick way, Advantech offered a standardized hardware platform with open design guidelines and relevant schematics that helped customers integrate general hardware platforms into unique applications. To achieve that, we dedicated ourselves to providing unified, organized and advanced software packages with longevity support.

We believe software and hardware standardization will be the key to speed up time-to-market. Most ARM developers suffer from difficult peripheral integration as it takes time to find compatible peripherals and port corresponding drivers. Since then, we’ve consolidated and verified peripheral modules and devices in advance and offer driver ready software to our customers. This saves time and speeds up your ARM solution development.

However, all this is still not enough to overturn the confusion in ARM technology development. To reorganize the ecosystem, we are not only driving the unification in hardware and software, but we are introducing partners into this ecosystem in order to bring more add-on features in application development and complete the last mile to market. We believe ARM technology deserves to be shared, and our unified hardware, software and services will enable a brand new collaboration model in the ARM market.

### IoT Connectivity
- WISE-PaaS Built-in
- SUSI API Built-in

### Kernel & Industrial Peripheral Modules
- Standardized BSP
- Advantech Loader
- Longevity Yocto & Android BSP Upgrade

#### Embedded Linux & Android Alliance (ELAA)
- Build Engine
- Custom OS
- Driver Porting
- Performance Tuning
- Vertical AP

#### Software Ecosystem Partners
- Find more software solutions & ecosystem partners

### Unified ARM Development Platform
- Optimal
- Configurable
- Compatible

### Online Marketplace
- Industrial H/W & S/W

### Online Developer Community
- Forum
- S/W Library

### Development Kit RTX Qseven 3.5" SBC

### Intelligent Systems

### Peripheral Integration
- Wireless
- Display
- Storage
Advantech Unified Board Support Package

To facilitate embedded application development and ARM-based solution adoption, Advantech offers standardized and modularized board support packages to deliver an improved software development experience. Through Advantech Loader, we provide optimized configuration setting, flexible boot selection, and secure software protection features to enhance customers’ application design. Our built-in SUSI API and WISE-PaaS SDK enable reliable hardware monitor/control and secured IoT connectivity. Our integrated device sample codes help our customers evaluate trusted quality peripherals in a timely manner and we release complete product specifications, design guides, and programming instructions to assist customers with system integration.

Advantech’s longevity Board Support Package (BSP) upgrade service brings compatibility and flexibility for rapid embedded Linux innovation and allows customers to adopt a wide-range of the most up-to-date Linux/Android releases. We are committed to collaborating with our ecosystem partners to deliver trustworthy software services and efficient technical support that helps accelerate our customers’ ARM project development.

Advantech BSP Key Features

- Unified Architecture
- Longevity Upgrade
- Complete Documentation

Advantech Optimized Board Support Package

- SUSI Demo APP
- Production Test APP
- Function Test APP
- EMI SI/ PwP Test APP

- SUSI API
- WISE-PaaS Agent

- Reference Codes for Integrated Peripherals
- Kernel & Peripheral Drivers
- Advantech Loader

Advantech Design-in Services

In the past, ARM-based application development was time-consuming and resource-intensive in development time due to the lack of technical know-how, experience, and an incomplete ecosystem. Advantech was aware of that, so we created a brand new service model to enhance product design-in through a dedicated experienced service team with plenty of technical know-how. We offer a full-range of assistance in software, hardware and integration and we’re capable of software development, board design, test execution, system integration and trouble-shooting, all of which expedites your development cycles and boosts your own time-to-market.
Advantech has been working with RISC technology for over 10 years beginning with MIPS. We think standardizing the form factor is a key factor in making RISC more popular. With this in mind, Advantech launched its COM (Computer on module), SBC (Single Board Computer) and RISC Development Kits into the market.

**RTX (Advantech)**
- 68mm x 68mm
- TI Sitara AM3352 Cortex-A8 1GHz Single core
- Wide range temperature and power input support
- Designed for automation
- Outstanding graphic performance
- Designed for rugged applications

**Qseven**
- 70mm x 70mm
- NXP i.MX6 Cortex-A9 1GHz Dual/Quad core
- Cost effective module solution
- Designed for networking and signage
- Strong multimedia performance
- Designed for Kiosk and HMI

**3.5” SBC**
- 146mm x 102mm
- NXP i.MX6 Cortex-A9 1GHz Dual Plus/Quad Plus
- Designed for video surveillance applications

Advantech originally introduced the RTX 2.0 (Ruggedized Technology eXtended) specification, which is a RISC standard platform designed for rugged applications such as military, logistics and transportation.

Qseven is also a standard COM form factor, which was defined by SGET and which has specified pinouts based on the high speed MXM system connector. Qseven focuses on handheld, HMI, and signage applications.

Computer On Module (COM) is a type of platform which tightly integrates all main components and is well proven and compatible. The modularized design helps developers quickly build their own carrier boards for their own unique application.
Single Board Computers

Advantech has long developed its Single Board Computer (SBC) series of products, which come in standard form factors in compact sizes with rich I/O, extremely low power consumption, and easy expansion capabilities. This helps you to reduce your H/W design effort and speeds your time to market.

<table>
<thead>
<tr>
<th>RSB-6410</th>
<th>RSB-4221</th>
<th>RSB-4410</th>
<th>RSB-4411</th>
<th>RSB-4760</th>
</tr>
</thead>
<tbody>
<tr>
<td>NXP i.MX6 Cortex-A9 1GHz Dual/Quad Core</td>
<td>TI Sitara AM3358 Cortex-A8 1GHz Single Core</td>
<td>NXP i.MX6 Cortex-A9 1GHz Dual/Quad Core</td>
<td>NXP i.MX6 Cortex-A9 1GHz Dual/Quad Core</td>
<td>Qualcomm ARM Cortex-A53 APQ8016 Quad core up to 1.2 GHz</td>
</tr>
<tr>
<td>Powerful multi-display capability, multiple I/O, and wireless connectivity</td>
<td>Dual Ethernet and M.2 key E for wireless connection</td>
<td>Supports LVDS, VGA and HDMI display</td>
<td>Rich I/O and wide range temperature and power input support</td>
<td>Highly integrated on-board wireless connectivity - Wi-Fi, BT, and GNSS</td>
</tr>
<tr>
<td>Designed for kiosks and IoT gateways</td>
<td>Designed for HMI</td>
<td>Designed for signage applications</td>
<td>Designed for HMI and industrial control</td>
<td>Designed for IoT applications</td>
</tr>
</tbody>
</table>

Development Kits

Developers continually need to prepare cables, power adapters and peripherals to start their platform evaluation when prototyping a product. All this takes time and effort, so Advantech released a series of development kits which have everything you need including, a main board, cables, power adapter, LED panel and an SD card. We’ve also built-in a Linux OS image for your quick evaluation.

<table>
<thead>
<tr>
<th>Qseven 2.0</th>
<th>RTX2.0</th>
<th>Qseven 2.1</th>
<th>3.5&quot; SBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM-DK7421</td>
<td>ROM-DK3420</td>
<td>ROM-DK7510</td>
<td>RSB-DK4760</td>
</tr>
<tr>
<td>NXP ARM Cortex-A9 i.MX6 Dual/Quad Plus 1 GHz</td>
<td>NXP ARM Cortex-A8 i.MX6 Dual/Quad 1 GHz</td>
<td>TI Sitara AM5728 Cortex-A15 Dual core</td>
<td>Qualcomm ARM Cortex-A53 APQ8016 Quad core up to 1.2 GHz</td>
</tr>
<tr>
<td>Dramatic graphics and memory performance enhancements</td>
<td>Reliable mechanical design combine with advanced power saving technology</td>
<td>Outstanding computing ability</td>
<td>Highly integrated on-board wireless connectivity - Wi-Fi, BT, and GNSS</td>
</tr>
<tr>
<td>Designed for portable applications</td>
<td>Designed for rugged applications</td>
<td>Designed for video surveillance applications</td>
<td>Designed for IoT applications</td>
</tr>
</tbody>
</table>
**Trusted Peripheral Integration**

ARM application development can be difficult due to peripheral integration, as well as driver support which is not so mature or well developed. Most engineers rely on open source drivers which are not thoroughly verified and may need to be modified in order to be integrated on different platforms. So to make things much easier, we streamlined the ARM platform integration process by consolidating compatible peripherals in the kernel source code and included detailed documentation for peripheral integration.

**Reliable peripheral in industrial grade**
Advantech offers high quality branded peripherals with longevity support, global warranty and rapid distribution, and customization flexibility. Industrial grade peripherals include display kits, RF modules, storage devices and expansion cards.

**Integrated driver in various OS**
To help users implement peripherals quickly, we pre-build drivers into a Linux kernel to save time in cross-compiling and driver porting. Drivers are verified in various OS environments including Linux, Android and Windows.

**Documentation for driver porting and device testing**
To help users integrate additional peripherals, we share our know-how of driver integration to help users porting drivers onto their own platforms. Additionally, we offer our test tools, commands and sample codes freely on the Advantech online forum, along with consultant services for those who would need help.

**WiFi Module**
- EWM-W150H02E
- 1750005885 RF Cable
- 1750000318 Antenna

**WiFi/BT Combo Module**
- EWM-W162M201E
- 1750007065-01 RF Cable
- 1770002842 Antenna

**3G Module**
- 968EMW0093
- 175007156-01 RF Cable
- 175005865 Antenna

**GPS Module**
- EWM-G108H01E
- 1750000264 RF Cable
- 175007991-01 Antenna

**Adapter**
- 96PSA-A36W12R1
  - ADAPTER 100-240V 36W 12V 3A DC PLUG 90°

**Panels**
- IDK-1115R-40XGC1E
  - 15" 1024 x 768 LED panel, 400 nits with 5W resistive touch

- IDK-1115P-40XGC1E
  - 15" 1024 x 768 LED panel, 400 nits with P-CAP touch

- IDK-1107WR-40WVA1E
  - 7" 800 x 480 LED panel, 400 nits with 4WR touch

- 96LEDK-A070WV40NB1
  - 7" 800 x 480 LED panel, 400 nits w/o touch

- IDK-1107WP-50WVA1E
  - 7" 800 x 480 LED panel, 500 nits with P-CAP touch

- 96LEDK-A190SX35NF1
  - 19" 1280 x 1024 LED panel, 350 nits w/o touch
In the past, banknote recycling machines were only used in large businesses like banks so their size didn’t really matter. However, as more and more stores and companies received fake notes, they started searching for small-sized functional banknote recycling machines to protect their own interests.

The railway systems in China have grown rapidly due to their convenience and widespread economic benefits. It is now the major public transportation system and serves millions of people every day. However, a total solution for data collection, processing and storage for the trains was still needed and data/network security and reliability issues presented a crucial challenge to overcome.

Advantech ROM-7420 is a cost-effective Computer-on-Module based on advanced ARM technology. It provides plenty of I/O and outstanding system performance to easily run the banknote identifier device which categorizes the notes by country or by value. The advanced graphic engine also helped distinguish fake notes by using a graphical analysis program developed by the banknote machine designer.

Advantech ROM-3420 is an ultra low power computer-on-module followed by RTX 2.0 form factor, which is specifically designed for ruggedized application with vibration-proof, anti-oxidation and anti-corrosion capabilities. It provided reliable core computing ability and steady network connectivity in the railway monitoring system and efficiently secured the data flow through Advantech built-in software API. Pairing with Advantech peripherals including SSD and WiFi 2.4GHz module, the industrial grade total solution facilitated data collection, processing and management in railway monitoring system and enhanced the smoothness and performance in its daily operation.

During development, a fatal issue popped up and risked the launch schedule. Advantech jumped in without hesitation with a professional support team focused on software and hardware debugging. By providing timely support and onsite service, the customer was able to quickly resolve all issues and get the project back on track.

Advantech offered the ROM-3420 RTX module with four robust B2B connectors, SATA interface for data collection, and wide operating temperature features, which fulfilled the reliability requirement of a railway system that continuously operated in extreme environments in the southern and northern regions of China.

In order to extend the usability of the module, Advantech tried to speed up the development of the carrier board by providing carrier board reference schematics, design guidelines, and checklists. As well as documentation, we shared our reference design including recommended transceiver and transmitter IC selection. After they finished the carrier board schematic, Advantech also helped to review/debug the system and provided additional production ideas to improve their time-to-market.
Order in 3 Easy Steps

1. Go AOnline
   Step 1: Login & Register

2. Add to Cart
   Step 2: Configuration

3. Confirm Order
   Step 3: Check & Submit

Please key in model name such as ROM-3420, ROM-7421, etc to find products.

Regional Service & Customization Centers

Worldwide Offices

Greater China

China
Toll Free 800-810-0345
Beijing 86-10-6298-4346
Shanghai 86-21-3632-1616
Shenzhen 86-755-8812-4222
Chengdu 86-28-8545-0198
Hong Kong 852-2720-5118

Taiwan
Toll Free 0800-777-111
Neihu 886-2-2792-7818
Xindian 886-2-2218-4567
Taichung 886-4-2329-0371
Kaohsiung 886-7-229-3600

Middle East and Africa

Israel 072-2410527

Asia

Japan
Toll Free 0800-500-1055
Tokyo 81-3-6802-1021
Osaka 81-6-6267-1887
Nagoya 81-52-856-9567

Korea
Toll Free 080-363-9494
Seoul 82-2-3653-9494

Singapore
Singapore 65-6442-1000

Malaysia
Kuala Lumpur 60-3-7725-4188
Penang 60-4-537-9188

Thailand
Bangkok 66-2-248-3140

India
Bangalore 91-80-2545-0206
Pune 91-20-3948-2075

Indonesia
Jakarta 62-21-751-1939

Australia
Toll Free 1300-308-531
Melbourne 61-3-9797-0100

Europe

Germany
Toll Free 00800-2426-8080/81
Munich 49-89-12599-0
Düsseldorf 49-2103-97-855-0

France
Paris 33-1-4119-4666

Italy
Milano 39-02-9544-961

Benelux & Nordics
Breda 31-76-523-3100

UK
Newcastle 44-0-191-262-4844
London 44-0-870-493-1433

Poland
Warsaw 48-22-31-51-100

Russia
Moscow 8-800-555-01-50
St. Petersburg 8-800-555-81-20

Czech Republic
Ústí nad Orlicí 420-465-521-020

Ireland
Oranmore 353-91-792444

Americas

North America
Toll Free 1-888-576-9668
Cincinnati 1-513-742-8895
Milpitas 1-408-519-3898
Ottawa 1-815-434-8731

Brazil
Toll Free 0800-770-5355

Mexico
Toll Free 1-800-467-2415

Europe
Toll Free 00800-2426-8080/81
Munich 49-89-12599-0
Düsseldorf 49-2103-97-855-0

France
Paris 33-1-4119-4666

Italy
Milano 39-02-9544-961

Benelux & Nordics
Breda 31-76-523-3100

UK
Newcastle 44-0-191-262-4844
London 44-0-870-493-1433

Poland
Warsaw 48-22-31-51-100

Russia
Moscow 8-800-555-01-50
St. Petersburg 8-800-555-81-20

Czech Republic
Ústí nad Orlicí 420-465-521-020

Ireland
Oranmore 353-91-792444

www.advantech.com

Please verify specifications before ordering. This guide is intended for reference purposes only.
All product specifications are subject to change without notice.
No part of this publication may be reproduced in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission of the publisher.
All brand and product names are trademarks or registered trademarks of their respective companies.
© Advantech Co., Ltd. 2017