Environmental and Facility Management Systems

Develop Your SCADA System with ADAM Solutions
Advantech has gained a great reputation in Supervisory Control and Data Acquisition (SCADA) by continuously improving its advanced ADAM series. Advantech's ADAM series distinguishes itself by featuring a wide variety of I/O and communication modules to meet high-volume SCADA requirements in environmental monitoring applications such as air/water quality measurement & control services, warning systems for landscapes, dams, bridges, traffic monitoring and unmanned station monitoring. In energy management, we also have field-proven solutions for pipeline management, power distribution and supply.

Project Implementation

**ADAM-5510/TCP Ethernet-enabled PC-based Controller**
- 10/100Base-T Ethernet Interface
- Four serial communication ports
- Supports HTTP server, FTP server, and e-mail alarm functions
- Supports Modbus/TCP server/client functions

**ADAM-6000W Wireless I/O Modules**
- Supports IEEE802.11b wireless LAN
- Embedded web server with built-in web page
- Supports Modbus/TCP & UDP protocols
- Supports event trigger function

**ADAM-4100 Robust I/O Modules**
- Robust design for harsh environment
- Easy plug-in system integration
- ADAM and Modbus/RTU dual protocol support

**ADAM-6000 Ethernet I/O Modules**
- Ethernet-based smart I/O
- Mixed I/O in single module
- Pre-built HTTP server and web page in each module for data/alarm monitoring
Intelligent Transportation Systems

Smooth Traffic Flow with PC-based Vehicle Detection System

Project Implementation

**UNO-3000 Embedded Automation Computer**
- Built-in real-time operating system
- Efficient application development
- Standard communication interfaces integrate with remote I/O solutions
- Flexible networking options

**ADAM-6541 Fiber Optic Converter**
- Supports 1-port Mbps multi- and single-mode fiber optics
- Supports 10—30 VDC power input
- Supports MDI/MDI-X auto crossover

**ADAM-5510KW PC-based SoftLogic Controller**
- 4 expansion I/O slots
- Supports IEC-61131-3 standard package
- Graphical programming interface
Building Automation

Enhanced Building Automation Management with Web-enabled Technology
Advantech has successfully implemented the eAutomation concept in diverse building automation (BA) applications to help users achieve advanced building management systems with simple Ethernet-enabled solutions. Through Ethernet-enabled technology, Security Systems, Facility Management Systems (HVAC, water treatment, power, etc.), DDC Systems and CCTV Systems all integrate into one system. Moreover, Web-enabled HMI software (WebAccess) provides remote monitoring capability anytime, anywhere.

Project Implementation

UNO-2000 Embedded Automation Computers
- Browser-only client saves costs and facilitates maintenance
- Remotely view and control I/O anytime, anywhere
- Alarm/event instantly handled through email

ADAM-6000 Smart Web I/O Modules
- Ethernet-based smart I/O
- Boundless monitoring and management with embedded web page
- Cost-effective, combined I/O design in one module

WebView Web-enabled Operator Interface Terminal
- Super slim and compact design with plastic housing
- NEMA4/IP65 compliant front panel
- Built-in Windows CE with Advantech WinCE WebAccess
- Supports Vector-based graphics

BAS-2000 Building Automation Controller
- Functional blocks for BA facility control
- A combination of universal I/O
- Supports IEC61131-3 control languages
- Supports Modbus/RTU and BACnet protocols

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Factory Automation

Bringing PAC Solutions to Factory Floors
Advantech’s ADAM-5550KW PAC Series is designed for high level industrial applications in factory floors which require complex control capabilities, high speed analog measurements, local storage and database, multiple programs support with different cycle times, open communication functions and enterprise-level network integration. For food and beverage machinery, high speed analog measurement is required for weight measuring. Advantech’s ADAM-5550KW Series also supports distributed motion control functions, making it the best solution for food and beverage machineries by replacing IPC plus PLC combinations.

Project Implementation

**ADAM-5550KW Programmable Automation Controller**
- Designed for control tasks that meet robust and computing performance requirements for PLC and Industrial PCs
- Supports IEC 61131-3 Standard PLC Programming languages and PLCopen-compliant motion control function blocks
- Open Architecture & Versatile Connectivity

**AMAX-2000 and AMONet RS-485 Motion Slave Modules**
- AMAX-2212 1-axis AMONet RS-485 Motion Slave Module
- AMAX-2752 32-ch Isolated Digital Input Module
- AMAX-2754 32-ch Isolated Digital Output Module
- AMAX-2756 6/16-ch Isolated Digital Input/Output Module
Complete Application Ready Platforms for the GMC Market

During the LCD manufacturing process, having a zero fault tolerance is almost impossible. Moreover, LCD panels are very delicate products, and can frequently have minor defects. Therefore, defect inspection is essential at each assembly station. Our customer wanted to increase the efficiency of their defect inspection stations and speed up their overall LCD production. They were using the traditional method of inspection, which consisted of having just one camera to complete the process, which is slow and cumbersome. With a new PC-based automation solution from Advantech, more cameras can be set up for inspections, allowing a smoother and faster production flow.

Project Implementation

**PCI-1202U**
2-port AMONet RS-485 Master Card
- Max. 20 Mbps transfer rate
- 2 independent AMONet - RS-485 Master Rings
- Max. 128 AMONet RS-485 slave modules supported
- Programmable digital input to notify events
- Easy installation with RJ45 phone jack and LED diagnostic

**AMAX-2212/J2S**
1-axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S
- Max. 20 Mbps transfer rate
- Max. 6.5 Mhz, 1-Axis pulse output 28 bits counter for incremental encoder
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support

**AMAX-2752**
32-ch Isolated Digital Input Module

**AMAX-2754**
32-ch Isolated Digital Output Module

**AMAX-2756**
16/16-ch Isolated Digital Input/Output Module
- DIN-rail mounting (L x W x H): 125 x 47.6 x 156 mm
- Max. 20 Mbps transfer rate
- Onboard terminal for direct wiring
- Easy installation with RJ45 phone jack and LED diagnostic
- LED indicator for each I/O channel (Switch by SW4)
- Selection of I/O-channel configuration (32 DI, 32 DO or 16/16 DI/DO)
- 2500 Vrms Isolation voltage

![Conveyor Control](image-url)
Automatic Test Equipment

Complete Solutions for your ATE Requirements
The high cost of state-of-the-art quality control systems for mobile phones has created a demand for more cost-effective alternatives. A leading ODM mobile phone manufacturer in Taiwan found such an alternative with Advantech. Standard products from Advantech were used to verify GSM and GPRS signals of mobile phones. The basic quality control procedure for frequencies used to require the phone to be tested, an operator, a test instrument, and a test station. This test would take approximately 1 minute per phone.

After implementing the new test equipment, the testing time was reduced to one operator using 4 test stations to simultaneously check 4 phones in 20 seconds; an output improvement of 1,200%. Reduced human error was another bonus, and the entire process is now accomplished at the fraction of the cost of a high-end, quality control system.

Project Implementation

**PCI-1762**
Relay Actuator and Isolated D/I Card
- 16 relay output channels and 16 isolated digital input channels
- LED indicators to show activated relays
- Jumper selectable Form A/Form B-type relay output channel
- Output status read-back

**PCI-1723**
Non-isolated Analog Output Card
- Auto calibration function
- A 16-bit DAC is equipped for each analog output channel
- Synchronized output function
- Output values retained after system hot reset

**PCI-1671UP**
GPIB Interface
- IEEE 488.2 Standard interface
- Complete Talker/Listener/Controller
- Industry standard 32-bit PCI bus
- Data transfer rates over 1.5 Megabytes/sec
- 1024-word FIFO buffer
- High-Speed State Machine Bus Manager
- 7 Interrupt lines, shared interrupt capability
- Transparent interrupt enabling/disabling
- Includes GPIB-Library software
- Low profile MD1 size
**Programmable Automation Controllers**

**The New Generation of Automation Controllers**
ADAM-5550KW is the first in our line of new Programmable Automation Controllers (PAC's). PAC's are powerful and versatile controllers combining a PLC’s ruggedness with a PC’s functionality under a flexible, open architecture. The robust ADAM-5550KW complies with PLC certifications and allows users to build complex systems with advanced control, communication, data logging, and signal processing capabilities. ADAM-5550KW is designed for satisfying users who need a high performance and cost-effective solution for complex control applications.

**Controllers**

**ADAM-5550KW**
8-slot Programmable Automation Controller
- Designed for control tasks that meet robust and computing performance requirements for PLC and Industrial PC’s
- Supports IEC-61131-3 Standard PLC Programming Languages
- Built-in VGA Port
- Remote monitoring through Web Server and Email Alarm
- Remote maintenance via FTP Server
- Supports Modbus/TCP and Modbus/RTU Master Function

**ADAM-5050KWAS**
8-slot PAC w/Advantech Studio
- Designed for control tasks that meet robust and computing performance requirements for PLC and Industrial PC’s
- Supports IEC-61131-3 Standard PLC Programming Languages
- Built-in VGA Port
- Built-in Advantech Studio HMI Software
- Built-in CE OPC Server
- Remote monitoring through Web Server and Email Alarm
- Remote maintenance via FTP Server
- Supports Modbus/RTU Master and Modbus/TCP

**I/O Modules**

**ADAM-5202**
2-ring AMONet Master Module
- Supports 2 independent AMONet RS-485 rings
- Supports up to 128 AMONet RS-485 slave modules
- Maximum 20 Mbps transfer rate
- Easy installation with RJ-45 phone jack
- Maximum 100 m (20 Mbps / 32 slave modules) communication distance

**ADAM-5030**
2-slot SD Storage Module
- Supports 2 SD slots for storage function on ADAM-5550KW
- Supports 2 USB 2.0 ports for ADAM-5550KW

**ADAM-5017UH**
8-ch Ultra High Speed Analog Input Module
- 1K Samples/sec per channel on ADAM-5550KW
- 8 Channels differential inputs
- 16-bit effective resolution
- 3000 V coul isolation voltage
- Supports ±10V and 4~20mA input ranges

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# Distributed I/O

## Robust I/O Modules

**ADAM-4520I**  
Robust RS-232 to RS-422/485 Converter  
- Wide operating temperature: -40 ~ 85°C  
- Automatic RS-485 data flow control  
- 3000 VDC isolation protection  
- Surge protection RS-485 data line

**ADAM-4510I**  
Robust RS-422/485 Repeater  
- Wide operating temperature: -40 ~ 85°C  
- Automatic RS-485 data flow control  
- 3000 VDC isolation protection  
- Surge protection RS-485 data line

**ADAM-4117/4118**  
Robust 8-ch Analog Input/Thermocouple Input Modules with Modbus  
- 8 differential and independent configuration channels  
- Wide operating temperature: -40 ~ 85°C  
- Higher noise immunity: 1KV surge protection on power inputs, 3KV EFT, and 8KV ESD protection

**ADAM-4150/4168**  
Robust Digital I/O / Relay Output Modules with Modbus  
- 7 input channels and 8 output channels for ADAM-4150  
- 8 Form A output channels for ADAM-4168  
- Wide operating temperature: -40 ~ 85°C  
- Higher Noise Immunity: 1 KV surge protection on power inputs, 3 KV EFT, and 8 KV ESD protection

## Wireless I/O Modules

**ADAM-6050W**  
18-ch Wireless LAN-enabled DI/O Module  
- Supports IEEE802.11b wireless LAN  
- Built-in 12 DI / 6 DO  
- Embedded web server with built-in web page  
- Supports Modbus/TCP & UDP protocols  
- Supports event trigger function

**ADAM-6051W**  
16-ch Wireless LAN-enabled Isolated I/O  
- Supports IEEE802.11b wireless LAN  
- Built-in 12 DI / 2 DO / 2 counters  
- Embedded web server with built-in web page  
- Supports Modbus/TCP & UDP protocols  
- Supports event trigger function

**ADAM-6060W**  
6-ch Wireless LAN-enabled Relay Output Module  
- Supports IEEE802.11b wireless LAN  
- Built-in 6 DI / 6 relay  
- Embedded web server with built-in web page  
- Supports Modbus/TCP & UDP protocols  
- Supports event trigger function

## Programmable Communication Controllers

**ADAM-4501/4501D**  
Ethernet-enabled Communication Controllers with 4 x DI/O (Optional LED Display)  
- 10/100Base-T Ethernet Interface  
- Email alarm function  
- Built-in Web Server  
- Built-in FTP Server and Client  
- Supports functionally versatile I/O modules  
- Full Functions of Standard TCP and UDP Sockets  
- Optional 4 digit 7-segment LED display  
- Supports Modbus/RTU and Modbus/TCP function libraries  
- 1.5 MB Flash ROM/640 KB SRAM with 384 KB backup SRAM

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**Streamlined Automation Systems with M2M Technology**

In order to meet the integration requirements of Environmental Monitoring Systems and Facility Management Systems, ADAM Remote I/O Series offers a diversified product range, powerful networking and communication capabilities, rich analog measurements with noise immunity and wide operating temperature. The following are the new products in the ADAM Remote I/O Modules.
Embedded Automation Computers

Open and Robust Computing Power for Automation Applications
Advantech's Embedded Automation Computers are designed to fulfill the needs of mission-critical automation applications. Their embedded design, rugged features and powerful computing technology delivers reliability and flexibility. These computers are targeted to satisfy customers who are looking for a robust and compact computing platform with industrial design and built-in I/O for diverse automation applications.

UNO-2000 Series
Compact High Performance Embedded Automation Computers

UNO-2171
Intel Pentium M UNO w/2 x LAN, 4 x COM, PC/104+
- Onboard Pentium M 1.4 GHz or Celeron M 1.0 GHz, 512 MB/1 GB DDR SDRAM
- Provides 512 KB battery-backup SRAM
- Two RS-232 and two RS-232/422/485 ports with automatic flow control
- Two 10/100Base-T RJ-45 ports
- Audio with Mic in, Line in, Line out
- Two USB and one type II/II PC Card
- PC/104+ expansion slots

UNO-2176
Intel Pentium M UNO w/2 x LAN, 6 x COM, 16 DI/O
- Onboard Pentium M 1.4 GHz/ Celeron M 1.0 GHz, 512 MB DDR SDRAM
- Provides 512 KB battery-backup SRAM
- Two RS-232 and four isolated RS-232/422/485 ports with automatic flow control
- 8-ch Digital Input and 8-ch Digital Output
- Two 10/100Base-T RJ-45 ports
- Two USB and one type II/II PC Card
- PC/104 expansion slots

UNO-2052E
AMD GX2 UNO w/2 x CAN, LAN, 8 DI/O
- Onboard GX2-400 MHz, 256MB DDR SDRAM
- Provides two CAN interfaces
- Provides one 10/100Base-T RJ-45 port and one USB port
- Isolated 8-ch DI/O and 2-channel AI
- Windows CE 5.0, Windows XP Embedded SP2, and Linux ready solution

UNO-2053E
AMD GX2 UNO w/2 x LAN, 2 x COM, Audio
- Onboard GX2-400 MHz, 256MB DDR SDRAM
- Two standard RS-232 and one DB-15 VGA connector
- Two 10/100Base-T RJ-45 ports
- Two USB and one type II/II PC Card slots
- Audio with Mic in, Line in, Line out
- Windows CE 5.0, Windows XP Embedded SP2, and Linux ready solution

UNO-2059E
AMD GX2 UNO w/4 x COM, LAN, PC Card
- Onboard GX2-400 MHz, 256MB DDR SDRAM
- 2 x RS-232/485, 2 x RS-232/422/485 with automatic flow control
- 2 x USB ports and 1 x type II/II PC Card
- One programmable diagnostic LED and buzzer
- Windows CE 5.0, Windows XP Embedded SP2, and Linux ready solution

UNO-2050E
AMD GX2 UNO w/2 x LAN, 4 x COM, 16 DI/O
- Onboard GX2-400 MHz, 256 MB DDR SDRAM
- Two RS-232 and two-isolated RS-232/422/485 with automatic flow control
- Two 10/100 Base-T RJ-45 port
- Isolated 8-ch DI and 8-ch DO with counter and timer
- Windows CE 5.0, Windows XP Embedded SP2, and Linux ready solution
UNO-3000 Series
Embedded Automation Computers ————
with PCI Expansion

UNO-3072
Intel Pentium M UNO w/2 x PCI slot, 1 x PC Card
• Onboard Pentium M 1.4 GHz/ Celeron M 1.0 GHz, 512 MB DDR SDRAM
• Provides 512 KB battery-backup
• Two RS-232 & two RS-232/422/485 ports with RS-485 automatic flow control
• Two 10/100Base-T RJ-45 ports and four USB ports
• Two PCI-bus expansion slots for versatile applications
• Windows 2000/XP driver ready and Linux driver support
• Windows XP(52) Embedded Ready Platforms with write protection(EWF)

UNO-3074
Intel Pentium M UNO w/4 x PCI slot, 1 x PC Card
• Onboard Pentium M 1.4 GHz/ Celeron M 1.0 GHz, 512 MB DDR SDRAM
• Provides 512 KB battery-backup SRAM
• Two RS-232 & two RS-232/422/485 ports with RS-485 automatic flow control
• Two 10/100Base-T RJ-45 ports and four USB ports
• Four PCI-bus expansion slots for versatile applications
• Industrial proven design: anti-shock up to 50G, anti-vibration up to 2 G

UNO-1000 Series
DIN-rail Mounted Embedded Automation Computers

UNO-1019
Intel XScale UNO w/2 x LAN, 4 x COM, CF Card
• Intel XScale PXA-255 200 MHZ Processor
• 2 x RS-232, 2 x RS-232/422/485 Serial Ports
• Dual 10/100 Mbps Ethernet
• 1 x CompactFlash
• Windows CE.NET Ready Platform
• Included Remote Display for Easy Configuration
• DIN-rail and Wallmounting Options
Seamless Integration Between Humans and Machines

Advantech offers a wide range of HMI products for automation needs. We offer not only hardware platforms such as the Industrial Panel PC (IPPC), the Industrial Workstation (AWS), Flat Panel Monitors (FPM), and Touch Panel Computers (TPC), but also very powerful NT/CE and Linux-based HMI solutions to easily migrate applications up or down as the scope changes.

Open HMI Platforms

Touch Panel Computers

**TPC-660G**
AMD LX800 Touch Panel Computer with 6.4” VGA TFT LCD Display
- AMD LX800 processor on board
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- One CompactFlash slot
- Supports Windows XP/CE and WinXP

**TPC-1070H**
Intel Pentium M/Celeron M Touch Panel Computer with 10.4” SVGA TFT LCD
- Intel Pentium M processor up to 1.4 GHz on board
- Compact design with Die-Casting
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Supports Microsoft Windows XP/2000/CE and WinXP
- Dual fast Ethernet supported

**TPC-66S/TPC-66T**
Intel XScale Touch Panel Computer with 5.6” QVGA STN/5.7 QVGA TFT LCD Display
- Intel XScale PXA processor on board
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Built-in flash memory and Windows CE OS
- One CompactFlash slot

**TPC-68T**
Intel XScale Touch Panel Computer with 5.6” QVGA TFT LCD Display and CAN-bus Support
- Intel XScale PXA processor on board
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Built-in flash memory and Windows CE OS
- One CompactFlash slot
- CAN-bus 2.0B protocol compatibility

**TPC-1270H**
Intel Pentium M/Celeron M Touch Panel Computer with 12.1” SVGA TFT LCD
- Intel Pentium M processor up to 1.4 GHz on board
- 12.1” SVGA TFT LCD
- Compact design with Al-Mg housing and Al alloy die-casting
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Giga Ethernet and fast Ethernet supported
- Supports Microsoft Windows XP/2000 and WinXP

**TPC-120H**
Intel XScale Touch Panel Computers with 12.1” SVGA TFT LCD Display
- Intel PXA 270 processor on board
- Super slim and compact design with Al-Mg housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Supports Microsoft Windows CE
**Flat Panel Monitors**

**FPM-3060G**  
Industrial 6” VGA Flat Panel Monitor with Direct-VGA Port  
- 6” VGA TFT LCD with resolution up to 640 x 480  
- Robust design with stainless steel chassis and aluminum front panel  
- Hard anodic coating to prevent panel abrasion and acid corrosion  
- Anti-reflective screen with tempered glass  
- Supports stainless steel front panel (Customization)  
- OSD control pad on front panel

**FPM-3170G**  
Industrial 17” SXGA Flat Panel Monitor with Direct-VGA Port, DVI, Video, S-Video  
- 17” SXGA TFT LCD with resolution up to 1280 x 1024  
- Robust design with stainless steel chassis and aluminum front panel  
- Hard anodic coating to prevent panel abrasion and acid corrosion  
- Anti-reflective screen with tempered glass  
- Supports stainless steel front panel (Customization)  
- OSD control pad on front panel

**FPM-3190G**  
Industrial 19” SXGA Flat Panel Monitor with Direct-VGA Port, DVI, Video, S-Video  
- 19” SXGA TFT LCD with resolution up to 1280 x 1024  
- Robust design with stainless steel chassis and aluminum front panel  
- Hard anodic coating to prevent panel abrasion and acid corrosion  
- Anti-reflective screen with tempered glass  
- Supports stainless steel front panel (Customization)  
- OSD control pad on front panel

**Industrial Panel PCs**

**IPPC-9151G**  
Rugged Intel Pentium 4 Industrial Panel PC with 15” LCD  
- Intel Pentium 4 processors up to 2.8 GHz  
- 15” XGA TFT LCD provides vivid, sharp and large images  
- Offers two expansion slots for PCI add-on cards  
- Front access USB connector  
- Heavy-duty stainless steel chassis with aluminum front panel  
- Strengthened glass protects the front panel from shock damage and is NEMA4/IP65 compliant  
- Built-in FDD and support for one CD-ROM and 3.5” HDD Drive

**IPPC-9171G**  
Rugged Intel Pentium 4 Industrial Panel PC with 17” LCD  
- Intel Pentium 4 processor up to 2.8 GHz  
- 17” SXGA TFT LCD provides vivid, sharp and large images  
- Offers two expansion slots for PCI add-on cards  
- Heavy-duty stainless steel chassis with aluminum front panel  
- Strengthened glass protects the front panel from shock damage and is NEMA4/IP65 compliant  
- Front access USB connector  
- Hard anodic coating to prevent panel abrasion and acid corrosion

**AWS-8129H**  
Workstation w/12.1” LCD, 9 Expansion Slots & Touchpad w/Mouse Key  
- 3 ISA, 4 PCI, 2 PICMG slot combined backplanes  
- Case dimensions (W x H x D): 482 x 266 x 317 mm (18.98” x 10.5” x 12.5”)  
- Front accessible FDD, Power switch and CD-ROM  
- Front accessible USB port  
- OSD & Membrane Key & Touchpad with two mouse buttons  
- NEMA4/IP65 compliant front panel  
- Optional analog resistive touchscreen (USB Interface)
Industrial I/O

Excellence in PC-based Measurement and Automation

With over 22 years of plug-in I/O card design and manufacturing experience, Advantech has become a global leader, providing a full range of industrial data acquisition and control products. There are six major categories - CompactPCI, PCI-bus, ISA-bus, USB-bus, PC/104 modules and motion control products. With rich wiring terminal modules and software support, Advantech provides high-speed, high-quality, yet cost-saving products for industrial requirements. Moreover, bundled with versatile industrial PC chassis, backplanes, CPU modules, flat panel monitors and embedded controllers, Advantech offers a one-stop shopping solution to serve all your needs.

PCI-bus Data Acquisition & Control Cards

<table>
<thead>
<tr>
<th>PCI-1742U</th>
<th>1 MS/s, 16-bit, 16-ch High-resolution Multifunction Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 16 single-ended, 8 differential or a combination of analog inputs</td>
<td></td>
</tr>
<tr>
<td>• 16-bit A/D converter, with up to 1 MHz sampling rate</td>
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<tr>
<td>• Onboard FIFO memory (1024 samples)</td>
<td></td>
</tr>
<tr>
<td>• Auto calibration</td>
<td></td>
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<tr>
<td>• Two 16-bit analog output channels</td>
<td></td>
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<tr>
<td>• 16 digital inputs and 16 digital outputs</td>
<td></td>
</tr>
<tr>
<td>• Onboard programmable counter</td>
<td></td>
</tr>
<tr>
<td>• Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)</td>
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</tr>
<tr>
<td>• BoardID switch</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PCI-1715U</th>
<th>500 kS/s, 12-bit, 32-ch Isolated Analog Input Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 2500 VDC isolation protection</td>
<td></td>
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<tr>
<td>• 32 single-ended or 16 differential analog inputs, or a combination</td>
<td></td>
</tr>
<tr>
<td>• 12-bit resolution for A/D conversion</td>
<td></td>
</tr>
<tr>
<td>• Up to 500 kS/s sampling rate for A/D conversion</td>
<td></td>
</tr>
<tr>
<td>• Programmable gain for each input channel</td>
<td></td>
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<tr>
<td>• Onboard 1024 samples FIFO buffer</td>
<td></td>
</tr>
<tr>
<td>• Onboard FIFO memory (1024 samples)</td>
<td></td>
</tr>
<tr>
<td>• Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)</td>
<td></td>
</tr>
<tr>
<td>• BoardID switch</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PCI-1718HDU</th>
<th>100 kS/s, 12-bit, PCI Multifunction Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI-1718HGU</td>
<td>100 kS/s, 12-bit, PCI Multifunction Card</td>
</tr>
<tr>
<td>• 16 single-ended or 8 differential analog inputs</td>
<td></td>
</tr>
<tr>
<td>• 12-bit A/D converter, with up to 100 kHz sampling rate</td>
<td></td>
</tr>
<tr>
<td>• Programmable gain</td>
<td></td>
</tr>
<tr>
<td>• Automatic channel/gain scanning</td>
<td></td>
</tr>
<tr>
<td>• Onboard FIFO memory (1024 samples)</td>
<td></td>
</tr>
<tr>
<td>• One 12-bit analog output channel</td>
<td></td>
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<tr>
<td>• 16 digital inputs and 16 digital outputs</td>
<td></td>
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<tr>
<td>• Universal PCI bus (support 3.3 V or 5 V PCI bus signal)</td>
<td></td>
</tr>
<tr>
<td>• BoardID switch</td>
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</tbody>
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<table>
<thead>
<tr>
<th>PCI-1727U</th>
<th>14-bit, 12-ch Analog Output PCI Card with Digital I/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 12 independent analog output channels</td>
<td></td>
</tr>
<tr>
<td>• Fuse on each channel</td>
<td></td>
</tr>
<tr>
<td>• Universal PCI for 5 V and 3.3 V support</td>
<td></td>
</tr>
<tr>
<td>• BoardID switch</td>
<td></td>
</tr>
<tr>
<td>• Synchronized output function</td>
<td></td>
</tr>
<tr>
<td>• Supports PCI-727 compatible mode</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PCI-1735U</th>
<th>64-ch Digital I/O and Counter PCI Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 32 TTL-level digital input channels</td>
<td></td>
</tr>
<tr>
<td>• 32 TTL-level digital output channels</td>
<td></td>
</tr>
<tr>
<td>• High-output driving capacity</td>
<td></td>
</tr>
<tr>
<td>• Low-input loading 3 programmable counter/timer channels</td>
<td></td>
</tr>
<tr>
<td>• User configurable clock source Breadboard area for custom circuits</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PCI-1737U</th>
<th>24-ch Digital I/O Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 24 TTL digital I/O channels</td>
<td></td>
</tr>
<tr>
<td>• Emulates mode 0 of 8255 PPI</td>
<td></td>
</tr>
<tr>
<td>• Interrupt handling</td>
<td></td>
</tr>
<tr>
<td>• Opto-22 compatible 50-pin connectors</td>
<td></td>
</tr>
<tr>
<td>• Output status readback</td>
<td></td>
</tr>
<tr>
<td>• Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PCI-1739U</th>
<th>48-ch Digital I/O PCI Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 48 TTL digital I/O channels</td>
<td></td>
</tr>
<tr>
<td>• Emulates mode 0 of 8255 PPI</td>
<td></td>
</tr>
<tr>
<td>• Interrupt handling</td>
<td></td>
</tr>
<tr>
<td>• Opto-22 compatible 50-pin connectors</td>
<td></td>
</tr>
<tr>
<td>• Output status readback</td>
<td></td>
</tr>
<tr>
<td>• Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PCI-1671UP</th>
<th>High-Performance IEEE-488.2 Interface for PCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>• IEEE 488.2 Standard interface</td>
<td></td>
</tr>
<tr>
<td>• Complete Talker/Listener/Controller</td>
<td></td>
</tr>
<tr>
<td>• Industry standard 32-bit PCI bus</td>
<td></td>
</tr>
<tr>
<td>• Data transfer rates over 1.5 Megabytes/sec</td>
<td></td>
</tr>
<tr>
<td>• 1024-word FIFO buffer</td>
<td></td>
</tr>
<tr>
<td>• High-Speed State Machine Bus Manager</td>
<td></td>
</tr>
<tr>
<td>• 7 interrupt lines, shared interrupt capability</td>
<td></td>
</tr>
<tr>
<td>• Transparent interrupt enabling/disabling</td>
<td></td>
</tr>
<tr>
<td>• Includes GPIB-Library software</td>
<td></td>
</tr>
<tr>
<td>• Low profile MD1 size</td>
<td></td>
</tr>
</tbody>
</table>

GPIB Card

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
USB-based Data Acquisition & Control Modules

**USB-4622**
5-port USB 2.0 Hub
- Supports USB 2.0
- Bus-powered
- 5 downstream USB 2.0 ports (Type A)
- 480Mbit/s high-speed data transfer
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

**USB-4711/4711A**
100/150 kS/s, 12-bit USB Multifunction Module
- Supports USB 2.0
- Bus-powered
- 16 analog input channels
- 12-bit resolution AI
- Sampling rate up to 150 kS/s
- 8 DI/8 DO, 2 AO and one 32-bit event counter
- Wiring terminal on modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

**USB-4716**
200 kS/s, 16-bit USB Multifunction Module
- Supports USB 2.0
- Bus-powered
- 16 analog input channels
- 16-bit resolution AI
- Sampling rate up to 200 kS/s
- 8DI/8DO, 2 AO and 1 32-bit counter (USB-4716L w/o AO)
- Wiring terminal on Modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

**USB-4718**
8-ch Thermocouple Input Module
- Supports USB 2.0
- Support voltage, current, and thermocouple inputs
- 8 thermocouple input channels
- 2,500 VDC isolation
- Support 4 ~ 20 mA current output
- Wiring terminal on modules
- 8-ch isolated DI and 8-ch isolated DO
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

**USB-4750**
32-ch isolated DI/O USB Module
- Supports USB 1.1/2.0
- Bus-powered
- 16 isolated DI and 16 isolated DO channels
- High voltage isolation on all channels (2500 Vpc)
- High sink current on isolated output channels (100 mA/Channels)
- Supports 5 ~ 40 Vpc isolated input
- Interrupt handling
- Timer/Counter capability
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

**USB-4671**
GPIB USB Module
- Supports USB 2.0
- Convenient portable design
- Bus-powered
- Complete IEEE 488.2 compatibility
- Full drivers, library, and example support, including Visual C++, C++, Builder, Visual Basic, and Delphi drivers.
- Provides powerful and easy-to-use configuration utility
- No GPIB cable required for instrument connection
- Plug & Play installation and configuration

**USB-4751/4751L**
48/24-ch TTL DI/O USB Module
- Supports USB 1.1/2.0
- Bus-powered
- 48 TTL digital I/O lines
- Emulates mode 0 of 8255 PPI
- Buffered circuits for higher driving capacity than 8255
- Interrupt handling
- Timer/Counter interrupt capability
- Supports both dry and wet contact
- 50-pin Opto-22 compatible box header
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

**USB-4761**
8-ch Relay, 8-ch Isolated DI USB Module
- Supports USB 1.1/2.0
- Bus-powered
- 8 relay output channels and 8 isolated digital input channels
- LED indicators to show activated relays
- 8 Form C type relay output channels
- High voltage isolation on input channels (2,500 Vpc)
- High ESD protection (2,000 Vpc)
- Wide input range (5 ~ 30 Vpc)
- Interrupt handling capability
- Wiring terminal on Modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

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Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
### Industrial I/O

#### Motion Control Cards/Modules

<table>
<thead>
<tr>
<th>Card Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI-1202U</td>
<td>2-port AMONet RS-485 Master Card</td>
</tr>
<tr>
<td>PCM-3202P</td>
<td>2-port PC/104+ AMONet RS-485 Master Card</td>
</tr>
<tr>
<td>PCI-1240U</td>
<td>4-axis Universal PCI Stepping/Pulse-type Servo Motor Control Card</td>
</tr>
<tr>
<td>PCM-3240</td>
<td>4-axis PC/104 Stepping/Pulse-type Servo Motor Control Card</td>
</tr>
</tbody>
</table>

#### AMONet Machine Control Box

<table>
<thead>
<tr>
<th>Box Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMAX-2050KW</td>
<td>GX2-400 Machine Control Box with AMONet Interface</td>
</tr>
<tr>
<td>AMAX-2210 Series</td>
<td>1-axis AMONet RS-485 Motion Slave Modules</td>
</tr>
<tr>
<td>AMAX-2242/J2S</td>
<td>4-axis AMONet RS-485 Motion Slave Module</td>
</tr>
<tr>
<td>AMAX-2710</td>
<td>12-bit, 100kS/s, 16-ch Analog Input, 4-ch Analog Output Slave Module</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMONet Slave Modules</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMAX-2210 Series</td>
<td>1-axis AMONet RS-485 Motion Slave Modules</td>
</tr>
<tr>
<td>AMAX-2242/J2S</td>
<td>4-axis AMONet RS-485 Motion Slave Module</td>
</tr>
<tr>
<td>AMAX-2710</td>
<td>12-bit, 100kS/s, 16-ch Analog Input, 4-ch Analog Output Slave Module</td>
</tr>
</tbody>
</table>

---

**Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com**
**Rugged, Portable and Rackmounted Chassis**

**MIC-3001AR/8**
4U CompactPCI Chassis with 8-slot Backplane, Fan Tray Module, I/O and AC ATX Power Supply
- 8-slot hot swap compliant backplane
- Easy installation: rackmount or panelmount
- Hot swap fan tray module

**MIC-3001AR/14**
4U CompactPCI Chassis with 14-slot Backplane, Fan Tray Module, Rear I/O and cPCI Standard Redundant Power Supply
- 14-slot hot swap compliant backplane
- Easy installation: rackmount or panelmount
- Hot swap compliant backplane
- Hot swap fan tray module
- Optional fault detection and alarm notification
- Logic Ground and Chassis Ground can be isolated or common

**MIC-3002AR/6**
4U CompactPCI Chassis with 6-slot Backplane and Rear I/O Support
- 6-slot 3U CompactPCI backplane
- Easy installation: rackmount or panelmount
- Hot swap compliant backplane
- Stand feet on the bottom side for desktop applications
- Logic Ground and Chassis Ground can be isolated or common

**MIC-3002AD**
4U CompactPCI Chassis with 6-slot backplane and 6” LCD
- 6-slot 3U CompactPCI backplane
- Compact size, 4U high enclosure for 3U cPCI modules
- Side handle design and optional 6” LCD display for portable applications
- Stand feet on the bottom side for desktop applications
- Hot swap compliant backplane
- Logic ground and chassis ground can be isolated or common

**High Performance Controllers**

**MIC-3321**
3U CompactPCI Pentium M 760 2.0G High-performance Controller
- Built-in Intel Pentium M 760 2.0G processor with 2MB L2 Cache
- Mobile Intel 915GM express chipset
- Supports up to 1GB DDR2 533/400 SDRAM soldered on board
- Extended operating temp: -25 ~ 70°C (Optional; MIC-3321C/CS only)
- Dual Giga LAN on PCI-Express
- High-performance Intel Graphics Media Accelerator 900 VGA display
- Onboard CompactFlash disk socket
- Onboard 2.5” HDD support
- Rear I/O signal support for easy wiring

**Diversified Data Acquisition and Communication Cards**

**MIC-3723/3723R**
16-bit, 8-ch Non-isolated Analog Output Cards
- 16-bit high resolution
- 8 Analog output channels
- Support hot swap function
- Auto-calibration
- BoardID switch
- Support Rear I/O

**MIC-3680/3680R**
2-port Isolated CAN Communication Cards
- CompactPCI specification PICMG 2.0 R3.0 compatible
- Hot swap support
- Two individual CAN ports
- Supports CAN2.0 A/B high speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation up to 2,500 VDC
- Microsoft Windows DLL library and examples included
- Supports Windows 98/ME/2000/XP drivers and utility
- Support Rear I/O

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Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Industrial Communication

Complete Industrial Communication Solutions
Advantech's Industrial Communication series includes industrial communication cards and Fieldbus communication cards that offer cost-effective ways to add communication ports to your PC workstation, and industrial converters that connect control field devices to plant level systems. Industrial communication cards and Fieldbus communication cards support PCI-bus, ISA-bus, PC/104 and PC/104+ to fit into versatile industrial automation platforms.

Industrial Ethernet Switches

Gigabit Ethernet Solutions

EKI-6728
8-port 10/100/1000 Mbps Industrial Gigabit Unmanaged Ethernet Switch
- 8 x 10/100/1000 Mbps Ethernet ports
- Embedded switch controller for auto-negotiation
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported

Fast Ethernet Solutions

EKI-6527M/SC
EKI-6527S/SC
6-port Industrial 10/100 Mbps Unmanaged Ethernet Switch with Multi-mode/Single-mode Fiber Port
- 6 x 10/100 Mbps Ethernet ports and 1 x 100 Mbps multi/single-mode fiber port (SC type)
- Embedded switch controller for auto-negotiation
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported

EKI-6628F
6-port 10/100 Mbps Industrial Unmanaged Ethernet Switch with 2-port 1000 Mbps (SFP) Fiber port
- 6 x 10/100 Mbps Ethernet ports
- 2 x 1000 Mbps SFP-type fiber ports for optional 1000BaseSX/LX device
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported

EKI-7528
8-port Robust 10/100 Mbps Industrial Unmanaged Ethernet Switch
- 8 x 10/100 Mbps Ethernet ports
- 2 x combo 10/100/1000 Mbps Ethernet port / 1000Base-SX/LX (SFP) fiber ports (Optional)
- Embedded switch controller for auto-negotiation
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported

EKI-7529C
8-port Robust 10/100 Mbps Unmanaged Ethernet Switch with 2-port Combo 10/100/1000 Mbps Ethernet Port / (SFP) Fiber Port
- 8 x 10/100 Mbps Ethernet ports
- 2 x combo 10/100/1000 Mbps Ethernet port / 1000Base-SX/LX (SFP) fiber ports (Optional)
- Embedded switch controller for auto-negotiation
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported
Industrial Ethernet Switches

Managed Ethernet Switches

**EKI-6558**
8-port 10/100 Mbps Industrial Managed Redundant Ethernet Switch
- 8 x 10/100 Mbps Ethernet ports
- Smart Redundant Ethernet Ring (recovery time < 100ms) and RSTP (Rapid Spanning Tree Protocol) supported
- GARP Snooping to filter multicast traffic from Ethernet
- SNMP V1 network management protocol supported
- IEEE 802.1Q tagged Virtual LAN (VLAN) supported
- IEEE 802.1p/1Q QoS for traffic classification and prioritization

Industrial Media Converters

**ADAM-6841SX**
**ADAM-6841LX**
Gigabit Ethernet to Fiber Optic Converters
- 1-port 1000 Mbps Ethernet port
- 1-port 1000 Mbps fiber port with SC type connector for 1000Base-SX/LX device
- Internal jumper for full/half duplex setting
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- +10~30 VDC voltage power input

**ADAM-6541P**
**ADAM-6541S**
Enhanced Ethernet to Multi-mode/Single-mode Fiber Optic Converter
- 1-port 100 Mbps multi-mode fiber optics
- Internal jumper for Link Fault Pass-Through (LFT) setting
- Remote/local loop back test for self-diagnostic
- +10~30 VDC voltage power input
- 3,000 VDC surge EFT protection for power line
- Wide operating temperature from 0 to 60° C

Ethernet Data Gateways

**ADAM-4579W**
**ADAM-4577W**
1/2-port RS-232/422/485 to 802.11b/g WLAN Universal Device Gateway
- IEEE 802.11b/g standard supported
- Supports standard network API: Winsock, socket
- Wireless LAN Ad-Hoc and infrastructure modes
- High transmission speeds up to 230 Kbps
- Advanced security mechanism to avoid unauthorized access
- Support any operating system with TCP/IP protocol: Windows, Linux, etc.

**USB-4602B**
2-port RS-232 to USB Converter w/Surge Protection
**USB-4602BM**
2-port RS-232/422/485 to USB Converter w/Surge Protection
- 2 x RS-232/422/485 serial ports (USB-4602BM)
- Full compliance with USB V1.1 and V2.0 specifications
- Transmission speed up to 921.6 Kbps
- Automatic RS-485 data flow control
- Support bus power (5 VDC) and external power input (10~48 VDC)
- Plug & Play and Hot-swap

**USB-4604B**
4-port RS-232 to USB Converter w/Surge Protection
**USB-4604BM**
4-port RS-232/422/485 to USB Converter w/Surge Protection
- 4 x RS-232/422/485 serial ports (USB-4604BM)
- Full compliance with USB V1.1 and V2.0 specifications
- Transmission speed up to 921.6 Kbps
- Automatic RS-485 data flow control
- Support bus power (5 VDC) and external power input (10~48 VDC)
- Plug & Play and Hot-swap
Advantech offers a total solution for Building Automation systems including facility management (HVAC, water treatment, power, etc.) and security (access control, door/window alarm, etc.). Equipped with Advantech’s WebView, WebLink, BAS-2000 and ADAM modules, system integrators can easily create powerful and flexible BAS applications. The following are the new products of BAS solutions.

**WebView-660**
Web-enabled HMI with 6.4” VGA TFT LCD Display
- 6.4” TFT LCD
- Super slim and compact design with plastic housing
- NEMA4/IP65 compliant front panel
- Built-in Windows CE with Advantech WinCE WebAccess
- Support Vector-based graphics
- Support various of protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- Remote control and monitor by Web Browser
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintenance, help to reduce maintenance cost
- Import BMP, JPEG, GIF

**WebView-1261**
Web-enabled HMI with 12.1” SVGA TFT LCD Display
- 12.1” SVGA TFT LCD
- Super slim and compact design with Al-Mg housing NEMA4/IP65 compliant front panel
- Automatic data flow control RS-485
- Built-in Windows CE with Advantech WinCE WebAccess
- Support Vector-based graphics
- Support various of protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- Remote control and monitor by Web Browser
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintenance, help to reduce maintenance cost
- Import BMP, JPEG, GIF

**WebLink-2170**
Web-enabled Communication Gateway
- Two RS-232 and two RS-232/422/485 ports with automatic flow control
- Two 10/100Base-T RJ-45 ports
- Two USB and one type I/II PC Card
- PC/104 expansion slots
- Built-in Windows CE with Advantech WinCE WebAccess Gateway
- Support various of protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintain, help to reduce maintenance costs
The Next Generation of Automation Controller

High level industrial applications require complex control capabilities, high speed analog measurements, multiple program support with different cycle times, open communication functions and enterprise-level network integration. In order to satisfy the market demands for complex control, Programmable Automation Controllers (PAC) are emerging in the market. PAC's define the new generation of industrial controllers which feature the PC's openness, high performance CPU, rich memory and powerful software functionality as well as the PLC's reliability and robustness.

The above figure shows the evolution of the automation controller. The PAC acronym is being used both by traditional PLC vendors to describe their high end systems and by PC-based Control companies to describe their industrial control platforms. PAC development is the same goal of PLC and PC-based Controller manufacturers. Programmable Automation Controllers incorporate multi-domain functionality, common development platforms, open standard interfaces and distributed modular architectures. PLC simply understates the capability of current automation systems. As the new generation comes to market, the more apt notion of PAC will displace its predecessor. PAC's augment the function and role of traditional PLC's by defining new capabilities.

Another approach of PAC is evolving from Industrial PC with mature embedded computing technology. With the nature of open architecture, PAC provides not only Industrial Computer's high computing performance but also the PLC's robustness.
The Breakthrough of Embedded Computing Technology

Progressive embedded computing technology overcomes traditional engineering obstacles, allowing easier changeover from PC-Based Controllers to Programmable Automation Controllers.

Stable Operating System:
Industrial applications require highly stable operating systems to satisfy certain conditions such as real-time functions, system crashes and unpredictable system resets. The embedded operating systems such as Windows CE and Embedded XP are typical in the market. Windows CE can meet the real-time application requirements. Embedded XP is a modularized Windows XP. After proper programming, the control program can work correctly even the system is under blue screen status. Through Embedded XP's SP2 EWF function, engineers have no fear of OS crash by an unexpected system reset.

Reliable Parts:
PAC's have removed unreliable moving parts, such as fans and hard disks. Low power consumption CPU's and fanless technologies are mature now. The wide operating temperature (-40 ~ 85° C) of CF cards as well as Ethernet Chips is available in the market. High capacity CF cards with sizes up to 2GB are also common and standard in the market today.

Standard Programming Language:
Operators in the plant need to fix malfunctions and recover systems in the shortest amount time. By using ladder diagrams, they can recover the system manually by forcing the coils to return to the default status and fix the affected codes. Now, the IEC-61131-3 standard can allow up to 5 PLC programmable languages, which allows manufacturers to save on developing time by using three kinds of graphical mixed languages.

Openness of Automation Architecture:
The use of Ethernet TCP/IP, Internet and IT standards maximizes data integration throughout an enterprise. In a collaborative manufacturing environment, the multi-functional capabilities of a PAC enable easy access and exchange of production process information, and connect factory-floor operations to enterprise-level systems. Where traditional PLC products require proprietary programming languages, a PAC can be commanded using IT standards, such as SQL queries, and open data transfer technology, such as OLE for process control (OPC) and extensible markup language (XML). This provides faster updates of actual, not copied, data, and consumes minimal bandwidth because the enterprise system does not have to poll the controllers. Rather, the PAC's send data based on events.

The Use of Ethernet TCP/IP, Internet and IT Standards Maximizes Data Integration Throughout an Enterprise