The ASIC-300 program development system provides a wide range of IEC 1131 languages to program the ASIC Control runtime engines. Networking features allow the Windows NT based development system to communicate with one or more ASIC Control engines on Windows NT®, Windows CE, Phar Lap, or other embedded operating system platforms. You can use ASIC for discrete control, process control, and motion control applications. The development system features program editors, user-friendly graphical configuration, and a global tag database that simplifies development. Drivers are available for many standard industry I/O systems, device networks, and other control hardware devices.

ASIC-300 PROGRAM DEVELOPMENT SYSTEM FEATURES

The ASIC-300 software provides program development, on-line debugging, node monitoring, and network monitoring. ASIC-300 software is based on Microsoft Component Object Model (COM). It uses the same ActiveX and OLE interfaces that are prevalent in all Microsoft products. Control programs, function blocks, and configurations are all "objects" that drag & drop to assemble an ASIC Control application.

Portability and Integration
Applications developed in ASIC-300 can be downloaded to a wide range of control hardware and operating systems. There is no need to be tied to any specific type of hardware or one operating system. Using technology similar to Java, ASIC Control Engines are portable to various operating systems such as Windows CE, Windows NT, Phar Lap’s Realtime ETS Kernel, and other commercial 32-bit operating systems. A single development tool creates the application, but the target can be selected based on cost and performance.

Reusable Code
Writing PLC code is a complicated, time-intensive procedure, and the end product has only a single application. In contrast, the ASIC-300 development system allows you to create reusable control objects. These objects or components can be stored in a central repository for reuse by other applications and developers. Easy access and storage of these components can eliminate duplication of work and recreate common components.

Distributed Nodes and Workstations
ASIC-300 control nodes can read and write control data to development stations, data workstations, or other control nodes on the same network. This means that applications can be broken down into manageable pieces and performance will be improved by distributing the application across multiple smaller controllers. These control pieces are easily integrated with a plant wide automation solution to simplify development and debugging.

Communication
ASIC-300 control nodes and development stations connect to a standard plant wide TCP/IP Ethernet network. The ethernet information network allows a user to remotely program, upload and download new programs, perform remote online edits, and transfer information between the various ASIC control nodes.
ASIC-300 DEVELOPMENT TOOLS

Control Manager
The Control Manager serves as the central interface to an ASIC-300 development system. It is used to create and organize the control application and to activate the associated configuration and programming editors for the application objects. These objects are listed below. Note, that each uses its own configuration editor.

- **Interface cards**
- **Program units** that perform the control strategy functions
- **Symbols** that define variables and assign names to physical I/O points on the I/O cards
- **Tasks** that schedule program execution

Upon conclusion of development, the Control Node application code is then built and downloaded through standard Ethernet to the targeted ASIC Control Node hardware. The Control Manager is also able to start and stop Control Node execution.

Program Editors
Develop functions to program your control strategy using the wide variety of program editors offered by ASIC-300, all of which follow the familiar IEC 1131-3 standard. Using a non-proprietary standardized programming languages make maintenance and inheritance easier. Select any combination of editors from the following list:

- **Sequential Function Chart (SFC+)** - ASAP’s patented extensions of the standard SFC language add motion control, new control functionality and enhanced diagnostics.
- **Relay Ladder Logic (RLL)** - A comprehensive set of control elements are organized in a “palette” for easy access. Power flow, I/O forcing and on-line changes are provided during run-time operation.
- **Function Block Diagram (FBD)** - A powerful programming environment which is ideal for process control applications, but also allows users to create their own custom Function Block which can be developed in “C” or any of the other IEC-1131 programming languages. This means that specialty PID instructions or commonly used control algorithms can be named and re-used.
- **Structured Text (ST)** - A textual language that closely resembles BASIC or Pascal with additional constructs which allow direct programmatic access to inputs, outputs, function blocks and motion control.
- **Instruction List (IL)** - Commonly used for discrete applications and resembles the internal assembly language of a computer with Load/Store and Boolean type functions.

Display Features
Control Node Monitor displays control node status information. Watch Window allows the developer to observe the operation of the program. It displays and changes control values and symbols.
ASIC Control Runtime System Features

The ASIC Control runtime engine can reside on the same computer as the development system, or can execute remotely on a wide range of computer platforms or devices. Because ASIC Control is portable, it runs under the following operating systems: Windows NT, Windows CE, Phar Lap's Realtime ETS Kernel, and other 32-bit operating systems. You can get the ASIC Control runtime engine preinstalled on one of Xycom Automation’s OpenCNTRL controllers (XACs) or as a separate item that you can embed on a wide variety PCs and devices.

Scalability

ASIC Control engines execute control objects built, stored and downloaded from a central Windows NT development and supervisory workstation. ASIC-300 allows the selection of any combination of features and functions to tailor the application for your needs. The same code can be used for high-end workstations or lower cost and unprecedented small, embedded systems. Only use the size of ASIC-300 that fits the application requirements for an optimal cost. A single development tool creates the application, but the target can be selected based on cost and performance.

Device Drivers

ASIC-300 provides a wide assortment of I/O, motion and communication drivers. Additional device drivers are available upon request.

Integrated Architecture

Development System

Runtime System

Control Hardware

Third Party Software

- Industrial HMI Software
- Visual Basic, C++ Programs
- Off-the-Shelf Spreadsheets
- ODBC-Compatible Databases

Factory Floor
SPECIFICATIONS

ASIC-300 Development Contents
- Tools to design control programs and configure all PC hardware, I/O interface cards and I/O addressing
- Microsoft® Explorer®-like Control Manager
- Application build capability
- IEC 1131-3 program editors, including FBD, RLL, ST, IL, SFC and SFC+
- On-line monitoring and help menus
- Node monitor and watch windows

Recommended ASIC-300 Development Hardware and OS Requirements
- Microsoft® Windows NT® Operating System
- Pentium® PC with minimum 32 MB DRAM
- Minimum of 20 MB available hard disk space
- Standard Ethernet capability
- Monitor, keyboard, mouse, touch screen or other I/O device

ASIC Control Runtime Engine Software Contents
- ASIC Control Engine
- WinCE (WinNT available soon) with realtime support, Phar Lap Realtime ETS Kernel

ASIC Control Runtime Engine Hardware Requirements
Prebundled Xycom Automation controller (XAC) or configure your own PC as follows:
- DOS 6.x compatible BIOS
- Minimum 80486 50 MHz CPU with 8254 Counter/Timer, two 8259A Interrupt Controllers, 146818 real-time clock, 16550URT with at least one serial port active
- 4 MB RAM
- 2 MB Flash (one reserved for OS and one to retain user program and constants)
- PC/104 header or ISA bus connector or I/O or network interface cards
- Serial or Ethernet TCP/IP connection for uploading/downloading and monitoring

Permitted ASIC Control Runtime Engine Hardware Additions
- PC104 or ISA Ethernet or I/O cards
- PCMCIA Ethernet card (call 800-AT-XYCOM)
- Hard drives
- Flash disk (M-Systems with True FFS method of storing files is supported)
- Floppy drive, keyboard, minimum VGA monitor

COMPATIBLE HMI INTERFACES

Device Drivers
- Visual Basic
- Other Windows NT and CE-based HMIs through OPC or DDE

ASIC-300 DRIVERS

Device Drivers
- DeviceNet Interface
- Interbus-S I/O Interface
- Profibus DP Interface
- Ethernet for I/O
- GE90/30 I/O via GE PCIF Interface
- GE Genius I/O via GE PCIM Interface
- AB KTx Remote I/O Interface
- PAMUX
- Seriplex I/O
- Others, based on demand

Communication Drivers
- Ethernet TCP/IP
- Microsoft OCX Interface to Tags
- Serial Interface

Motion Drivers
- Motion Engineering Motion Controller
- Delta Tau PMAC Motion Controller (in progress)
- Others, based on demand

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