ADwin DAQ Systems for Control Applications

Real-Time PLC & Test Control with Many Popular Drivers

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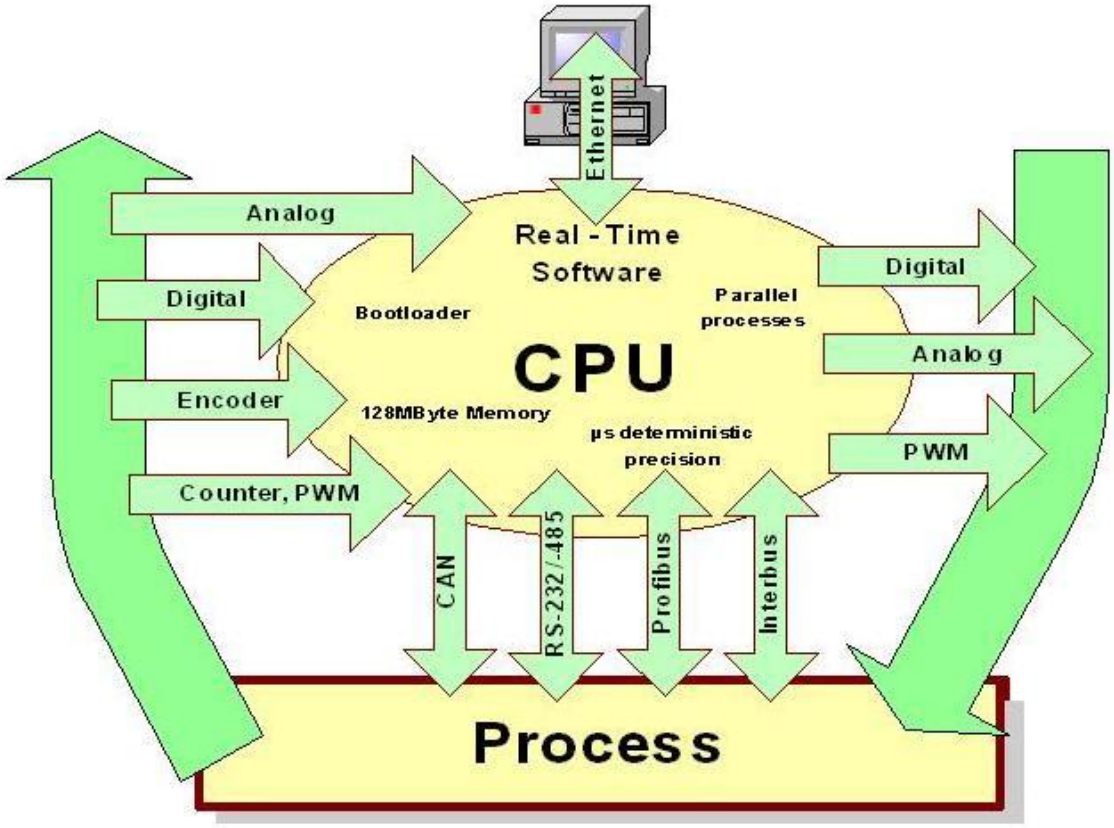
CAS DataLoggers offers **ADwin data acquisition and control systems** for intelligent, high-speed control applications in every industry. Since 2001, we have supplied these high-performance measurement and control systems to customers working in many different applications. By utilizing the programmability of the ADwin's local CPU, users can run real-time control programs with extremely fast execution speeds in the **kHz to MHz** range. As a high-end example of ADwin's functionality, let's use the **Siemens SIMATIC S7** programmable logic controller:

ADwin Interface to Siemens SIMATIC S7 PLC

Communication via Ethernet



The Simatic Fetch/Write communication over the Ethernet network is a one-to-one connection between an ADwin system and a Siemens Simatic PLC. The connection allows read and write accesses to system memory areas of the Simatic. There are ways to access data blocks, flags, inputs, outputs, counters and timers.

The ADwin system is a client of the active part of communication. From the perspective of the Simatic S7 there is a passive communication function, which will only be projected. The PLC has no access to the ADwin system.

Requirements for access to the Simatic PLC:

- ADwin system with an Ethernet interface type ENET2 with the latest firmware and bootloader option;
- Simatic PLC Communication Processor (CP), which supports the Fetch/Write protocol;

- Two configured network connections on the PLC, one each for Fetch and Write.

ADwin Functionality

ADbasic software enables flexible and simple programming of fast data acquisition, open-loop and closed-loop control procedures for ADwin systems. ADbasic programs are executed on the local processor of the ADwin hardware, triggered by the occurrence of an event signal. In an ADbasic process, communication with the PLC is controlled by a global parameter. The transmit and receive data and configuration information for the communication are stored in global arrays.

ADbasic dramatically reduces the effort of realizing your ideas, being easy to learn due to its BASIC-like syntax. All global **ADbasic** variables can be changed and displayed in a separate window. The cross compiler generates and downloads binary real-time files to the **ADwin** hardware within a few seconds. Program changes can be done quickly and easily.

Configurable parameters include:

- Field numbers for Transmit and Receive data
- Number and starting address of data to be transferred
- Network configuration of the PLC: IP and port numbers
- Type of system block (DB, flags, etc.)
- TCP/IP timeout, and polling time

ADwin Drivers--Connect to PC

User Interfaces for ADwin on the PC

A variety of programming languages and development environments are available for creating user interfaces on the PC. **ADwin** offers ready-made drivers, based on DLL or ActiveX, and communication interfaces that can be easily integrated into your programming environment. Using **ADwin** drivers you have direct access to communication and data exchange with your **ADwin** system.

Mathematical/Technical Program Packages

Take advantage of PC software packages such as LabVIEW, DASYLab, MATLAB, DIAdem, Agilent VEE and Excel for

visualization and control of your test stand or your equipment:

LabVIEW

The commands for control and data exchange with **ADwin** are normally in the form of VIs.

DASYLab

Gain directly integrated access to the **ADwin** system's data with **ADwin** function blocks. DASYLab offers complete capabilities for analysis and automation of real-time data down to micro-second speed.

MATLAB

MATLAB has its own optimized **ADwin** driver. Communicate with **ADwin** via the Command Window or M-file, or create a stand-alone applications seamlessly on your measurement, control or control task.

Python

Simple and straightforward, Python is ideal for use with ADwin systems for fast real-time control.

DIAdem

ADwin provides support with DIAdem--take advantage of the **ADwin** blocks for single-value or packet mode.

Microsoft Excel

The Microsoft Office applications Excel and Access communicate with ADwin using ActiveX and VBA. Generate your setpoint or calibration tables, send them to the ADwin system and let Excel visualize the results for further evaluation after the measuring task is finished.

Agilent VEE

When including our ActiveX component into Agilent VEE, you are able to use the ADwin functions as ActiveX objects in your graphical user interface.

Scilab

This open-source scientific software package is available both for Windows and Linux. Scilab is an ideal driver for your **ADwin** real-time application.

Programming Languages

All common programming languages such as Delphi, Visual Studio .NET, Visual Basic, Visual C/C++, C-Builder, LabWindows or Wonderware InTouch allow the inclusion of our DLL or ActiveX components. Almost every compiler or development environment supports at least one of these interfaces. Consequently, there is a large number of tools available for the design of your individual graphical user interface.

ADwin also includes drivers for Linux and Java. Use Java's platform independency or Linux's open-source tools for the implementation of your test stand's user interface.

To learn more about how **ADwin** systems can reduce your application's development time, or to find the ideal solution for your application-specific needs, contact a **CAS Data Logger** Applications Specialist at **(800) 956-4437** or visit the website at **www.DataLoggerInc.com**.

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