

NetAcquire Specifications

Typical Serial (PCM) Input/Output

- Channels: 2 serial in, 2 serial out (expansion to 64 channels)
- Data Rate: bit rates to 2, 3, 10, 20, 30, 40, 60, and 100 Mbps
- Electrical: RS-422, RS-232, TTL, ECL, LVDS
- Parameters: Software-selectable word width, bit rate, clock recovery, NRZ-L/M/S and Biphas-L/M/S bit encoding, MSB/LSB data alignment, sync/asynch/HDLC, data polarity
- Frame Synchronization: Sync word, width, mask, tolerance, strategy, and frame size parameters
- Data Decommuation: advanced frame layout with subcommutation, embedded formats, and CCSDS support

Typical Analog Input/Output

- Channels: 32 analog in (expansion to 512 channels)
- Maximum Input Speed: up to 1,250,000 conversions/second
- Analog Resolution: 12-bit or 16-bit analog-to-digital and digital-to-analog converters

Other I/O Interfaces

- MIL-STD-1553: bus monitor, bus controller, remote terminal
- SpaceWire: Packetized and non-packetized streams
- IEEE 1394/Firewire: 100/200/400 Mbps
- ARINC-429: up to 60 channels
- Control Outputs: high-current pulse, relay, and voltage drivers
- Custom Interfaces: 250,000 gate field-programmable digital gate array (FPGA)

Network

- Network: Ethernet with optional reflective memory
- Connector: twisted pair (1000BASE-T) Gigabit, with fiber optic and wireless optional
- Protocol Support: TCP, UDP, HTTP, HTTPS, FTP, SNMP, CORBA/IIOIP, DNS, RARP, BOOTP, NTP, PTP/IEEE 1588

Processor/Memory

- Main Processor: Pentium® Core 2
- Coprocessors: FPGA and ASIC acceleration in selected I/O subsystems

Data Storage Option

- Capacity: 2 TeraBytes
- Speed: >500 Mbps, continuous
- Storage Management: automatic/configurable wraparound

Time Synchronization

- Basic Network Accuracy: +/- 1 milliseconds
- High Accuracy: IRIG A/B/G, SNTP, IEEE 1588, or GPS time reference option

NetAcquire Server Software

- Operating system: hard real-time
- Onboard commands: over 100 onboard commands, depending on data I/O options
- Open Programming Architecture: available with NetAcquire Server Extension Toolkit

Client Software

- Operating systems: Microsoft Windows, Linux, and Mac OS
- User Interface: Web-based with Java
- Third-party support: DEWESoft, IADS, LabVIEW™, LabWindows, and Satellite Tool Kit
- Other client toolkits and applications: C, C++, C#, Java, .NET, CORBA, Visual BASIC, and MATLAB®

Physical

- Frame: heavy-duty steel
- Operating temperature: 32 to 122°F (0 to 50°C)
- Ventilation: 49 CFM fan with air filter
- Power Requirements: 90-132 VAC or 180-264 VAC, automatic range switching, 250 watts (DC power optional)
- Microbox: 6.0" (w) x 4.5" (d) x 5.4" (h) (150mm x 115 mm x 138 mm)
- Minibox: 4.7" (w) x 9.5" (d) x 7.8" (h) (103 mm x 209 mm x 170 mm)
- Rackmount: 1U, 2U, and 4U available
- Ruggedized Avionics: Optional MIL-STD-820, MIL-STD-461, MIL-STD-704, environmental hardening

Expansion and Options

A wide range of termination boards, analog and digital expansion boards, signal conditioning and isolation boards and special function boards such as counter-timers and RF receivers are available for your NetAcquire system. These interfaces may be supplied free-standing for mounting in your equipment racks or in a shielded box, tabletop or rack-mount enclosure. A large range of possible configurations and combinations are available and a NetAcquire Applications Engineer would be happy to construct a quote to your exact requirements.



Solutions That Fit

NetAcquire Corporation specializes in real-time distributed systems. We can configure NetAcquire solutions that are customized to your network, input/output, and processing needs.

For more information, contact NetAcquire Corporation at:

<http://www.netacquire.com>

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NetAcquire®

NetAcquire

High Speed Data Acquisition and Control Servers

The NetAcquire product family supports telemetry applications as well as a wide range of other mission-critical aerospace application areas. Regardless of the application, each member of the NetAcquire product family combines three key technologies: flexible data acquisition, real-time signal processing, and high-speed networking.

Together NetAcquire's products offer low-cost network enabled COTS solutions for many high performance distributed test and measurement applications that could previously be supported only by expensive one-off custom equipment.

The NetAcquire product family consists of over sixty off-the-shelf configurations designed to support a wide variety of applications.



NetAcquire Server

- Complete network-ready data acquisition subsystem
- Places input/output close to the sensors
- Modular input/output hardware interfaces to support serial, analog, and digital, signals
- Real-time operating system and applications software
- Hundreds of ready-to-run processing functions, including network protocol conversion
- Built-in Web server for remote administration
- High-speed recording
- Standalone autonomous capability
- Watchdog timer with auto-restart
- Rugged packaging and 24x7 "always on" operation
- Open software architecture supports easy extension development

Client PC or Workstation

- Web browser and Java® support convenient configuration and data display
- Runs no-cost NetAcquire browser based client software
- Data display applications run on the PC for graphics offload
- Client software available for Windows™ and Linux,
- Unlimited simultaneous client connections
- Attach to existing Ethernet networks or operate on dedicated network
- Software Development Toolkits available for custom system development in C, C++, C#, Java, Visual BASIC, and LABView

High Speed Data Communications

- Gigabit Ethernet
- Real-time publish/subscribe-based communications
- Network error detection and recovery
- TCP and UDP plus other configurable protocols and packet formats
- CORBA support ensures enterprise interoperability

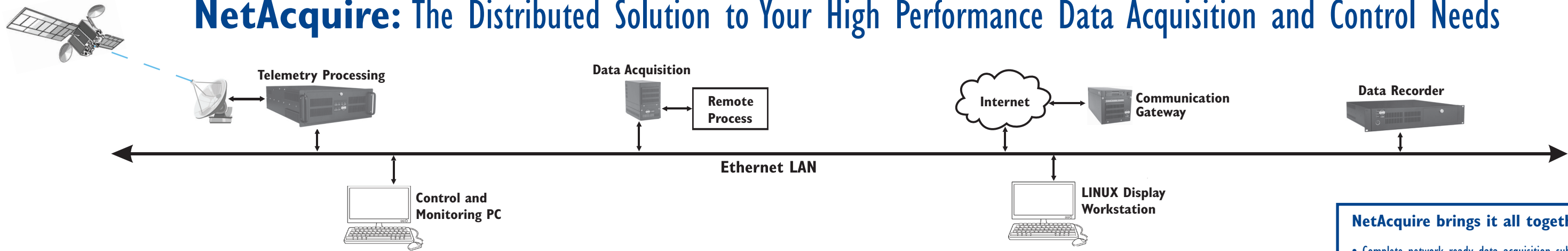
Applications

- Telemetry processing
- Hardware-in-the-loop simulation
- Telemetry over IP
- Avionics test
- Distributed data acquisition
- Factory automation
- Communications gateways
- Machine control
- High performance test and measurement



- Serial
- PCM
- Digital/TTL
- Relay
- Voltage
- GPB 488
- Current
- MIL-STD-1553B

NetAcquire: The Distributed Solution to Your High Performance Data Acquisition and Control Needs



Distributed Architecture

NetAcquire systems use the proven client/server architecture for optimized real-time data acquisition and control. An operational system is composed of two parts: the NetAcquire server and the client. Core real-time activities such as data capture, processing and closed loop control are executed on the NetAcquire server close to the point of sensor connection. The less time critical activities, such as data display, are located on one or more client computers running Windows, Linux, or Java.

The NetAcquire software environment is an open-architecture and allows customized extensions to tailor both client and server capabilities.

Flexible Interfacing

NetAcquire systems support many different hardware I/O interfaces, including serial, digital, analog, and pulse signals. Modular interface subsystems permit mix-and-match configuration with expansion of up to 512 channels. Each data interface option is software-configurable without programming. This combination of interface configurability and onboard processing supports creation of a wide range of virtual instruments, from spectrum analyzers to communications gateways.

Intelligence and Real-time Processing

NetAcquire servers are equipped with multi-core processors. The advantages of local processing include the ability to do real-time data manipulation and simultaneous high-speed communication. The real-time operating system avoids the timing limitations inherent in desktop operating systems such as Windows. Additionally, high-speed local disk recording can preserve critical data for future retrieval.

NetAcquire servers come with a wide range of predefined functions already installed, including data processing, routing, analysis, alarming, and display.

Versatile Networking

NetAcquire networking supports standard unshielded twisted pair Ethernet, fiber optic, and even wireless connections.

NetAcquire servers support unlimited simultaneous client connections, sharing data anywhere on the network. Both server and client software use industry-standard protocols and incorporate advanced network routing, error checking, and recovery – if a packet is lost or corrupted, it can be automatically re-sent.

NetAcquire servers can simultaneously communicate in real-time using multiple protocols including TCP, UDP, publish/subscribe and CORBA distributed objects.

Embedded Web Server

The NetAcquire embedded Web server allows convenient configuration and monitoring from anywhere on the network using just a Web browser.

Java applets also are served directly from each NetAcquire server, allowing distributed user interfaces that operate from any Java-enabled Web browser.

Server Software

The NetAcquire server uses an object-oriented software architecture that includes powerful built-in services and over 100 predefined processing functions.

NetAcquire services include local disk recording, data pre-processing and triggering, data simulation, and distributed time synchronization.

User-authored server extensions can be written in C or C++ to support specialized functions. The NetAcquire operating system supplies the overall processing framework for convenient extension programming requiring only a small number of lines of code.

Client Software

The NetAcquire no-cost client software provides network services to an applications package running on the client computer. Capabilities include quick-look raw and processed data display.

NetAcquire applications can be developed without programming with LabVIEW, DEWESoft, IADS, or Satellite Toolkit.

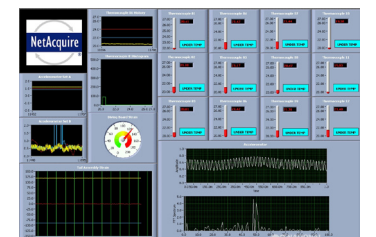
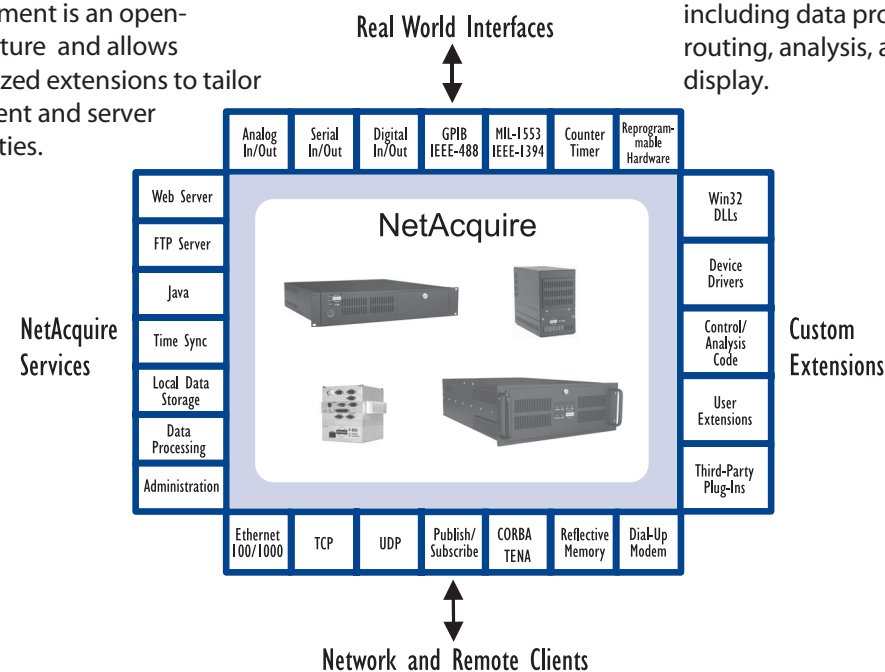
NetAcquire brings it all together...

- Complete network ready data acquisition subsystem
- Low-risk proven technology
- Client/server architecture
- Distributed processing
- Optimized for real-time performance
- Platform independent – connects to any Ethernet port

Java provides a client-neutral option for application development. The resulting virtual instrument front panels can be displayed from any Web browser.

DEWESoft and LabVIEW are Windows applications that provide point-and-click configuration, real-time graphs, disk logging, and turnkey operation.

Custom applications also can be created using a wide variety of supported languages. Development is easy, since all the real-time network code is already provided. In fact, a programmer can create a complete distributed NetAcquire application with fewer than 10 lines of C++ or Java code.



LabVIEW application screen