NetAcquire

NetAcquire® H30-SIO

Introduction

The NetAcquire H30-SIO Serial Telemetry I/O systems offer a new level of price-performance in COTS network-based telemetry/command gateway products. This system combines the power of real-time intelligent serial input/output hardware with the flexibility of high-speed network communications technology.

The NetAcquire H30-SIO performs as a low-cost real-time communications gateway between Ethernet networks and high-speed PCM serial devices. Network clients such as engineering workstations can now receive and send telemetry as well as command data directly from and to range, satellite and avionics communications equipment. The NetAcquire H30-SIO also supports data format conversion operations, frame synchronization, time tagging, header generation, and optional decommutation, all with best-in-class low latency real-time performance. An extensive suite of real-time processing functions are available without the need for programming.

The NetAcquire H30-SIO industry-standard TCP/IP & UDP network interfaces provide communication access for a wide variety of computers and operating systems on any Ethernet network. The NetAcquire H30-SIO also provides integrated support for publish/subscribe network protocols including DDS.

NetAcquire offers several companion software toolkits for use with these systems. The NetAcquire Server Extension Toolkit allows easy creation of custom data processing operations for execution in real-time on the NetAcquire H30-SIO.

Applications

- Ground station telemetry processing
- IP migration of range infrastructure
- Aerospace manufacturing and test
- Remote and wide-area monitoring
- Protocol conversion, gateways

Key Features

- Complete 'network-ready' intelligent telemetry processing system
- Two PCM serial input channels and two PCM serial output channels with expansion to 32 channels
- 30 megabit/second per channel Input and Output speeds, with higher-speed options up to 140 Mbps
- Software-selectable word width, bit rate, clock recovery, NRZ-L/M/S/R and Biphase-L/M/S bit encoding, HDLC, MSB/LSB data alignment, and data/clock polarity
- Bit sync option for situations where only a data input is available
- Optional telemetry decommutation with support for subcommutation, CCSDS, and engineering unit conversion
- Optional internal Data Recording, with support for the IRIG 106 Chapter 10 format
- Optional removable and/or read-only system disk with spares for classified and unclassified mission requirements
- High-speed network communications with advanced network error checking and recovery
- Optional IRIG-B precision time reference for time-tagging
- Copper or fiber Gigabit Ethernet interfaces
- Software Toolkits available for building customized local data processing capabilities
- TTL, RS-422, ECL, or LVDS signal levels

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Experts in Real-Time Distributed Systems

Specifications

Typical Serial (PCM) Input/Output
- Channels: Up to 32 bidirectional serial channels
- Data rates: 0-30 Mbps with higher-speed options to 140 Mbps
- Electrical: RS-422, RS-232, TTL, ECL, or LVDS
- Parameters: Software-selectable word width, bit rate, clock recovery, NRZ-L/M/S, R-NRZ and Biphase-L/M/S bit encoding, MSB/LSB data alignment, data/clock polarity, sync/async/HDLC framing
- Clocking: Internal and external transmit timing and adaptive or fixed receive timing
- Frame synchronization: Sync word, width, mask, tolerance, strategy, and frame size parameters
- Data Decommutation: Advanced frame support with subcommutation, embedded formats, and CCSDS support
- Diagnostics: Selectable loopback and loopout options and an optional integrated bit error rate tester

Network
- Interface: Gigabit Ethernet on twisted pair or optional with fiber media
- Protocol Support: TCP, UDP, HTTP, HTTPS, FTP, secure FTP, SNMP, CORBA IIOP, DNS, DHCP, NTP, SSH
- Negotiation: Automatic or manual link speed and duplex negotiation
- Quality of Service: User-selectable using DSCP (Differentiated Services Codepoint)

Timing
- IRIG Timing: IRIG-A/B/G are supported
- Network Timing: SNTP and IEEE 1588 time client and time server support

Other Input/Output Interfaces
- Analog signals: Up to 512 channel and 1.25 million conversions/second
- Digital signals: TTL, RS-422, ECL, LVDS, high voltage, relay, contact closure
- Avionics bus support: MIL-STD-1553, ARINC-429, SpaceWire, Firewire (1394)
- Application-specific hardware interfaces: 250,000 Gate field-programmable digital gate array

Processor/Memory
- Main Processor: Intel® Core™ I7-3770 3.4GHz
- RAM: 2 GB with expansion
- Coprocessors: FPGA and ASIC acceleration in selected I/O subsystems

Data Storage Option
- Capacity: Up to 2 Tbytes
- Speed: >500 Mbps, continuous

NetAcquire Server Software
- Operating System: Hard real-time with latency guarantees
- Diagnostics: Selectable power-up, continuous, and remotely initiated
- Backup: One-step configuration save/restore
- Open Programming Architecture: Available with NetAcquire Server Extension Toolkit

Client Software
- User Interface: Web-based with Java GUI and SNMP
- Third-party software support: DEWESoft®, LabVIEW™, IADS®, Satellite Tool Kit, MATLAB®, .NET, C, C++, Java, Visual BASIC, CORBA
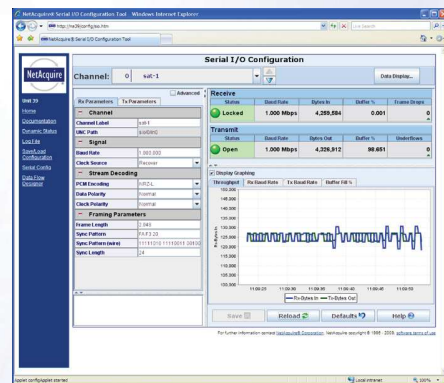
Physical
- Frame: Heavy-duty steel
- Operating temperature 32 to 122°F(0 to 50°C)
- Power Requirements: 90-132 VAC or 180-264 VAC with automatic range switching, 250 watts (DC power optional)
- Rack mount: 1U, 2U, and 4U available
- Avionics ruggedization: Optional MIL-STD-820, MIL-STD-461, MIL-STD-704 environmental

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.

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