DAQStreaming

40 MB/s Data Recorder for Analog and Digital Signals

Features

- Windows-based turnkey system for capturing and recording signals
- Up to 40 MB/s real-time data recording throughput
- Extended recording time at maximum data rate
- Multiple data acquisition modules
  - 4-CH, 20 MS/s DAQ device for high-speed analog signals
  - 8-CH, 2 MB/s DAQ device for simultaneous analog signals
- C-like file API to manage recorded data
- Complete software architecture for customized data processing
- Portable and IPC platform available

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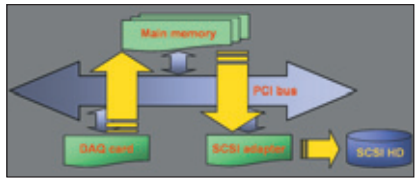
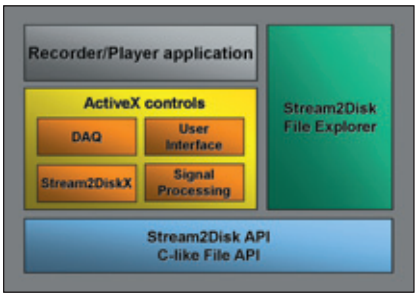
Background & Technology

Several data acquisition applications need to continuously acquire and record high volumes of data for off-line processing. However, due to disk speed limitations and file system overhead, it's always a challenge to acquire and record data in real-time without any data loss. With the current method, a proprietary disk control card is used to transfer the acquired data from another proprietary data acquisition device to a disk array via the front panel connection (i.e. FPDP). Introducing proprietary devices increases costs, making it priced out of reach for many users that require high-speed data recording system.

ADLINK introduced a revolutionary concept to utilize commercial SCSI devices and data acquisition cards to make high-speed data recording affordable. By combining a precise DMA control from DAQ card to SCSI hard disk and raw disk access capability, 40 MB/s real-time data recording rate is achievable in existing computer architecture.



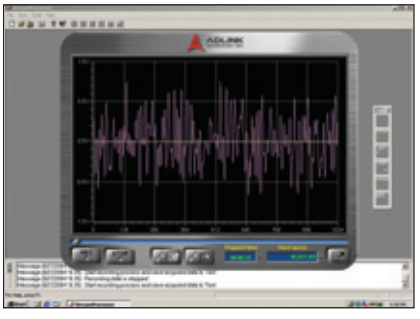


Advantages of DAQStreaming

DAQStreaming is designed to be a highly-integrated turnkey system. All the hardware components and software applications installed are ready-to-run while powering on. With advanced software techniques and commercial hardware devices, DAQStreaming delivers the following advantages:

Affordable solution for high-speed data recording

The 40 MB/s data recording throughput is achieved entirely by software techniques and not by any proprietary hardware. Without the high cost introduced by proprietary hardware, DAQStreaming delivers an affordable solution for high-speed data recording.

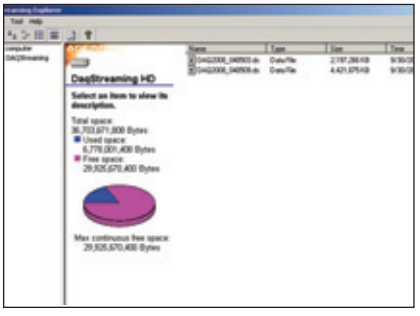


Complete software architecture and easy-to-use interface

Software is the core of DAQStreaming. DAQStreaming provides a complete software architecture to allow users easily record/review data by using our StreamProcesser application, or develop a customized data processing application using Stream2Disk API or ActiveX controls.

Suitable for recording different types of signals

DAQStreaming can be equipped with diversified data acquisition modules to fit different types of signals. For example, DAQStreaming-A1 is ideal for high frequency or "burst" signals whereas DAQStreaming-S1 is suitable for multi-channel simultaneous signals.



Highly-integrated system in various platforms

DAQStreaming integrates commercial hardware components and user applications into a single turnkey system. Based on commercial computer technologies, DAQStreaming is available in various platforms, including 19" rack-mount IPC, portable chassis, and PXI chassis.

Extendable storage space

DAQStreaming utilizes state-of-the-art SCSI devices as its storage media and merges all drive space into a single virtual drive. Users can easily extend the recording duration by adding additional SCSI drives.

Applications

Signal Surveillance

In signal surveillance applications, users continuously acquire different kinds of signals (analog or digital) and need to store the signals to disk for off-line processing. A typical application is airborne remote sensing, which uses different sensors to sense visible light, infrared or ultraviolet, and processes the acquired data to generate terrain/weather images. In the past, airborne remote sensing facilities can only generate discrete images because there is no proper solution to continuously capture and store such large volumes of data. The introduction of DAQStreaming is breakthrough for continuous image acquisition. In airborne remote sensing applications, the analog output of each infrared sensor is converted to an 8-bit digital signal and is fed to the input of DAQStreaming system. With the 40 MB/s data recording capability, all information along the flight course can be recorded, and continuous images can be generated during off-line processing.

Vibration and Shock Testing

Vibration and shock testing is crucial for many products-motor vehicles, aerospace structures, military electronics, railway equipment and so on. During vibration and shock testing, users apply vibrations or impacts to a UUT (Unit Under Test), and sense the generated signals for a long period of time. All signals should be recorded in real-time for further analysis. DAQStreaming-S1 provides 8 simultaneous analog input channels, which is ideal for the phase-related vibration or shock signals. With its 40 MB/s recording rate, all generated signals from the UUT can be faithfully recorded during the whole process.

Destructive Testing

In destructive testing, tests are carried out until the specimen fails. During the testing process, loads/stresses/shocks are applied to the specimen and the reactions of specimen are recorded. Under critical situations, a breakdown of specimen occurs. A breakdown is usually a "burst" signal, an abrupt wave of abundant data. A high-speed data acquisition is needed to capture this data. DAQStreaming-A1 is equipped with a 20 MS/s, 12-bit DAQ module and is suitable for recording burst signals during the destructive testing procedure.

Specifications

Model	A1-Portable	A1-IPC	S1-PXI	S1-Portable	S1-IPC
Data Acquisition Device					
Input Channel	4-CH analog inputs		8-CH simultaneous analog inputs		
Maximum Sampling Rate	1-CH @ 20 MS/s 2-CH @ 10 MS/s 4-CH @ 5 MS/s		8-CH @ 2 MS/s simultaneously		
A/D Resolution	12-bit		14-bit		
Input Range	±1 V or ±5 V		±10 V, ±5 V, ±2.5 V, ±1.25 V, 0-10 V, 0-5 V, 0-2.5 V, 0-1.25 V		
Storage Device					
Data Throughput	40 MB/s		32 MB/s		
Default Capacity	Seagate Cheetah 36.7 GB 15000 RPM Ultra-320 SCSI HDD *				
Recording Duration	15 minutes **		19 minutes **		
System Configuration					
Chassis	Robust portable chassis	19" 2U industrial chassis	3U, 8 slots PXI chassis	Robust portable chassis	19" 2U industrial chassis
CPU	Pentium® 4 2.4 GHz	Pentium® 4 2.4 GHz	Pentium® III 1.26 GHz	Pentium® 4 2.4 GHz	Pentium® 4 2.4 GHz
Memory	512 MB DDR	512 MB DDR	512 MB SDRAM	512 MB DDR	512 MB DDR
System Drive	80 GB	80 GB	40 GB	80 GB	80 GB
Display	Built-in 14.1" TFT	N/A	N/A	Built-in 14.1" TFT	N/A
CD-ROM	5.25" 52X CD-RW	Slim-type CD-ROM	N/A	5.2" 52X CD-RW	Slim-type CD-ROM
Power	ATX 400 W	ATX 250 W	Hot-swappable cPCI 250 W	ATX 400 W	ATX 250 W
OS	Windows 2000				

* Optional capacity extension is available (internal or external)

** Recording Duration = Capacity / Data Throughput

Ordering Information

- **DAQStreaming-A1-IPC** 40 MB/s Data recorder for high-speed analog signals in IPC platform
- **DAQStreaming-A1-Portable** 40 MB/s Data recorder for high-speed analog signals in portable platform
- **DAQStreaming-A1-Toolkit** DAQStreaming-A1 software + DAQ module (No platform and storage device included)
- **DAQStreaming-S1-PXI** 40 MB/s Data recorder for simultaneous analog signals in PXI platform
- **DAQStreaming-S1-IPC** 40 MB/s Data recorder for simultaneous analog signals in IPC platform
- **DAQStreaming-S1-Portable** 40 MB/s Data recorder for simultaneous analog signals in portable platform
- **DAQStreaming-S1-Toolkit** DAQStreaming-S1 software + DAQ module (No platform and storage device included)
- **DAQStreaming Capacity Extension Option** Internal or external capacity extension to extend recording duration