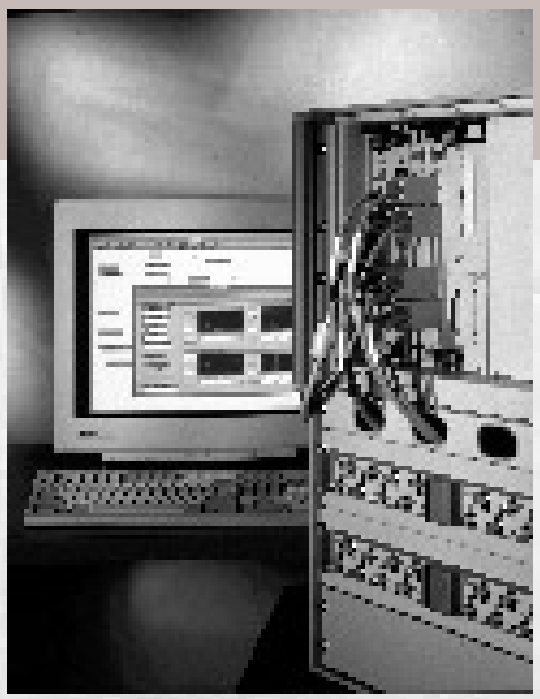
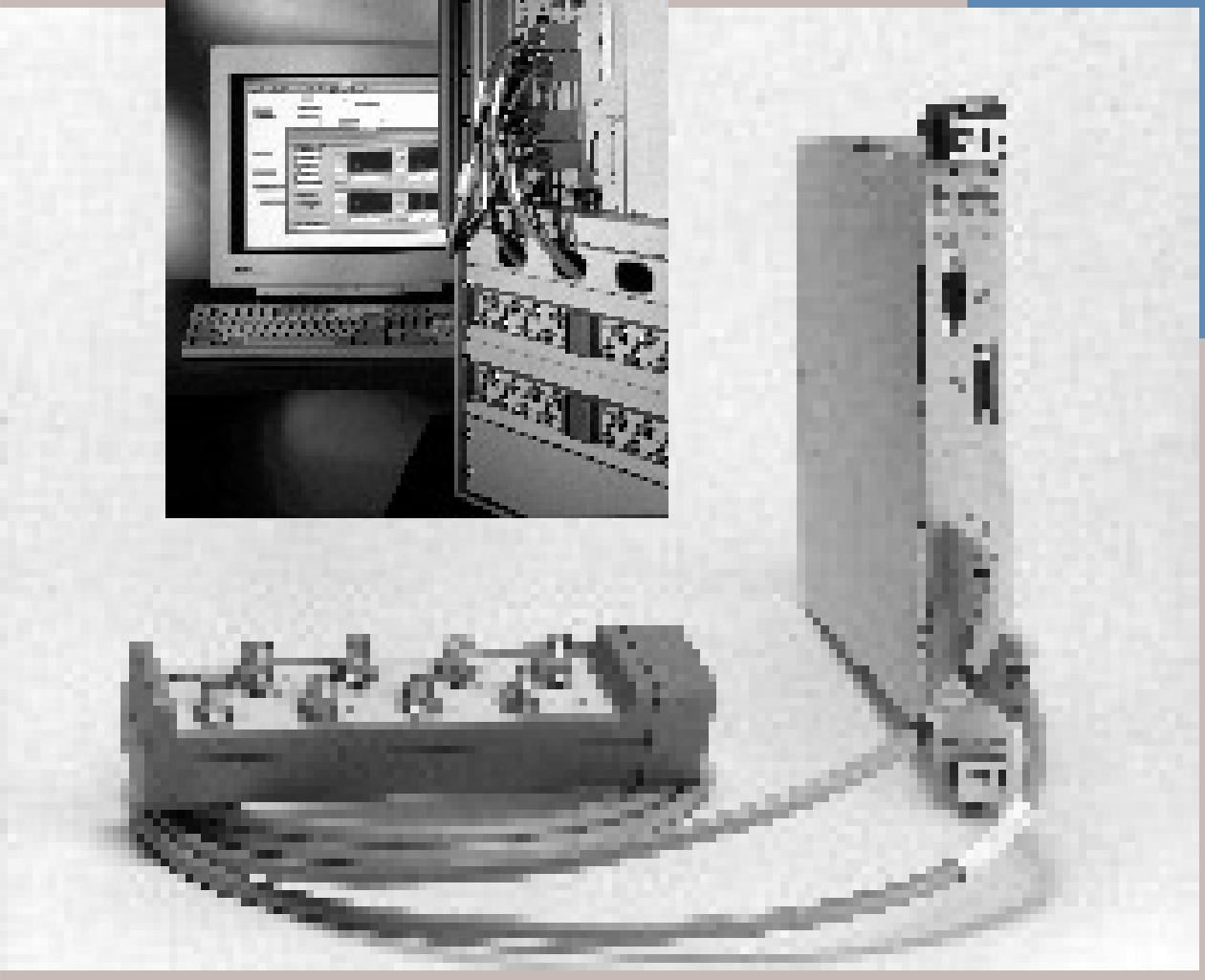
HEWLETT® PACKARD

Signal Conditioning, Filtering, Digitization, and High-Speed Measurement Computations - All in a Single VXI Module

HP E1432A 16-Channel
51.2 Ksample/Sec
16 Bit A/D with DSP





Building multi-channel measurement systems often requires the complicated integration of many separate modules. The HP E1432A 16-channel A/D with digital signal processing provides transducer interfacing, signal conditioning, anti-alias filtering, sample and hold, digitization, and high-speed DSP computations in a single-wide C-sized VXI module. This not only greatly simplifies integration, but guarantees the compatibility and accuracy of the finished system.

Breakout Boxes Power Common Transducers

External 8-channel breakout boxes provide power to ICP® transducers and microphones (future). Or an inexpensive voltage breakout box can be used if transducer conditioning already exists. To further simplify systems with mixed transducers, engineering units scaling is automatic, and channel data can be read out in floating point engineering units.

Delta-Sigma A/Ds Provide Wide Dynamic Range

Independent gain stages scale signals to the optimum level for digitization by individual delta-sigma A/D converters. Sampling is simultaneous across all channels in each HP E1432A, or all HP E1432As in a system. There is no time difference between channels to contaminate cross-channel time or phase measurements.

HP E1432A Digital Signal Processing

Onboard DSP processors offload computations from the host computer, providing new levels of measurement performance. Adding additional HP E1432As to a system adds additional DSP power, maintaining system performance even for very high channel count systems.

Computations performed in the onboard DSP:

- Digital anti-alias filtering and decimation
- Zoom processing
- Integer to floating point conversion
- Channel data de-interleaving
- Windowed, averaged FFTs (with HP E3203A Measurement Engine)
- Order tracking (with HP E3203A Computed Order Tracking option 1D0)

Exceptional Data Capture Rates

Data can be captured to onboard RAM, providing gapless data capture regardless of the number of channels in your system. 4 Mbytes of onboard RAM is standard, but you can increase it to 32 Mbytes for longer captures. Or you can capture data to the 4 Gbyte HP E1562B Data Disk. The very high local bus data rates of the HP E1432A and HP E1562B let you capture 64 channels at the maximum 51.2 ksample/sec rate without any gaps in the data.

Add a Source Stimulus

An optional 20 bit DAC generates sine, random, burst sine, or burst random outputs. Use it as stimulus for modal analysis, vibration control, road simulation or acoustic measurements. Since it fits into the HP E1432A, it adds little cost and doesn't require an extra VXI slot.

Or Add an Optional Tachometer Input

A dual tachometer/trigger input provides RPM triggering of data blocks at specified RPM intervals within a selected RPM range. When used with the Computed Order Track option to the HP E3202A Measurement Engine, exceptionally high run-up and run-down rates are possible.

Specifications

Number of Channels	16, 8, or 4
Input Type	Differential or Grounded
Sample Rates	51.2 kHz to 25.6 Hz
Alias-Protected Channel Bandwidths	23 kHz to 10 Hz
Alias Protection	90 dB
Dynamic Range	80 dB guaranteed, 90 dB typical
Independent Input Ranges	100 mV to 20 Volts (1,2,5 steps)
ICP Current	4 mA
FIFO Size	4 MB standard 16 and 32 MB opt.
Data Transfer Rates	
VXI Bus	10 Mbytes/sec
Optional Local Bus	32 Mbytes/sec
To E1562B Data Disk	> 6 Mbytes/sec
Source*	20 bits at 4 kHz 16 bits at 25.6 kHz
Dynamic Range	90 dB dynamic range
Tachometer*	65,536 pulses/rev max 100,000 pulses/sec max

* An HP E1432A can have the source option or the tachometer option, but not both.

ICP is a U.S. registered trademark of Piezotronics Inc.

Typical Users by Industries

- Automotive
- Aerospace
- Transportation
- Utilities
- Heavy Industries

Typical Users by Applications

- Modal Analysis
- Finite Element Verification
- Structural Test
- Rotating Machinery Analysis
- Acoustics
- Vibration Control
- Transient Analysis
- Vibration Analysis
- Road Simulation

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