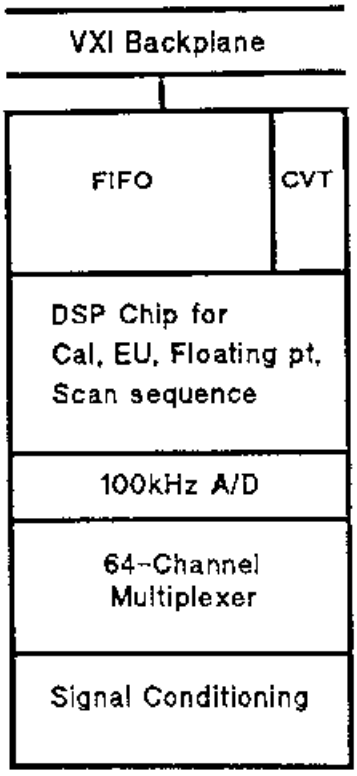
64-Channel Scanning A/D Subsystem



- Throughput
  - 100kHz at 16 bits
  - > 1.5kHz/channel
- Measurement Types
  - Temperature
  - Strain
  - DC Volts
  - Resistance
- Engineering Unit Conversion at full speed
- Plug-on Signal Conditioning Modules
- On-board Calibration Source
- 64K Readings RAM
  - FIFO
  - Current Value Table
- Scan List Management (up to 4)
- Tare Calibration Provided

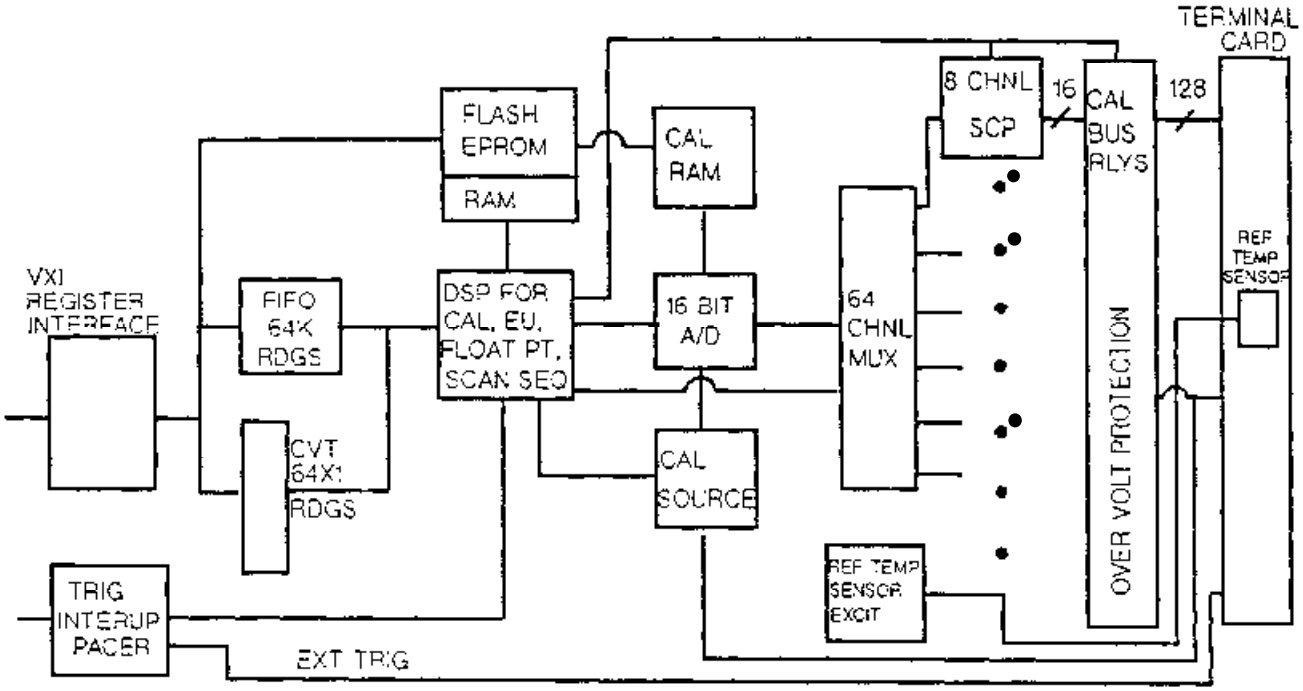
E1413A Background - Target Market - HiDATT System

Many of you with customers in the turbine and piston engine test and wind tunnel test monitoring businesses already know all about the E1413A (Mirrors) A/D. We have asked virtually everyone in these businesses exactly what they want and need in a data acquisition system and that is what HiDATT is intended to be. The E1413A is the A/D front end and it exceeds the general purpose, multi-channel requirements of the target market customers. It is a port of the HP 3852A's 16 bit, 100 kHz A/D with a 64 channel FET mux on-board and considerable additional functionality in a smaller space.

The E1413A is an extended device with registers in both A16 and A24 address space. It is designed for high speed continuous data acquisition to disk with multiple modules in a VXI card cage. It does IEEE floating point number conversion and engineering unit conversion of data at full speed. The Current Value Table (CVT) is a set of 64 channel data registers in A24 space that can be rapidly accessed to update displays, PID loops, etc. 8 channel signal conditioning plug in cards allow mixed signal measurements at the full 100 kHz speed.

Both SCPI and CSCPI drivers are provided, and direct high speed programming of the register interface can also be done.

HP E1413A 64-Channel Scanning A/D



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E1413A Features & Performance

The major contributions of the E1413A are:

1. Per channel signal conditioning allowing mixed functions, volts, temperature, strain, and resistance at speed. Pressure will be taken care of by the E1414A, PSI pressure scanner interface, which is a modified version of the E1413A, designed to directly interface with PSI Inc., 8400 series pressure scanners.

2. Amplification and Filter per channel.

3. 64 FET channels per module on board, and multiple module capability in VXI.

4. 32 bit IEEE Floating Point Data Format at Speed

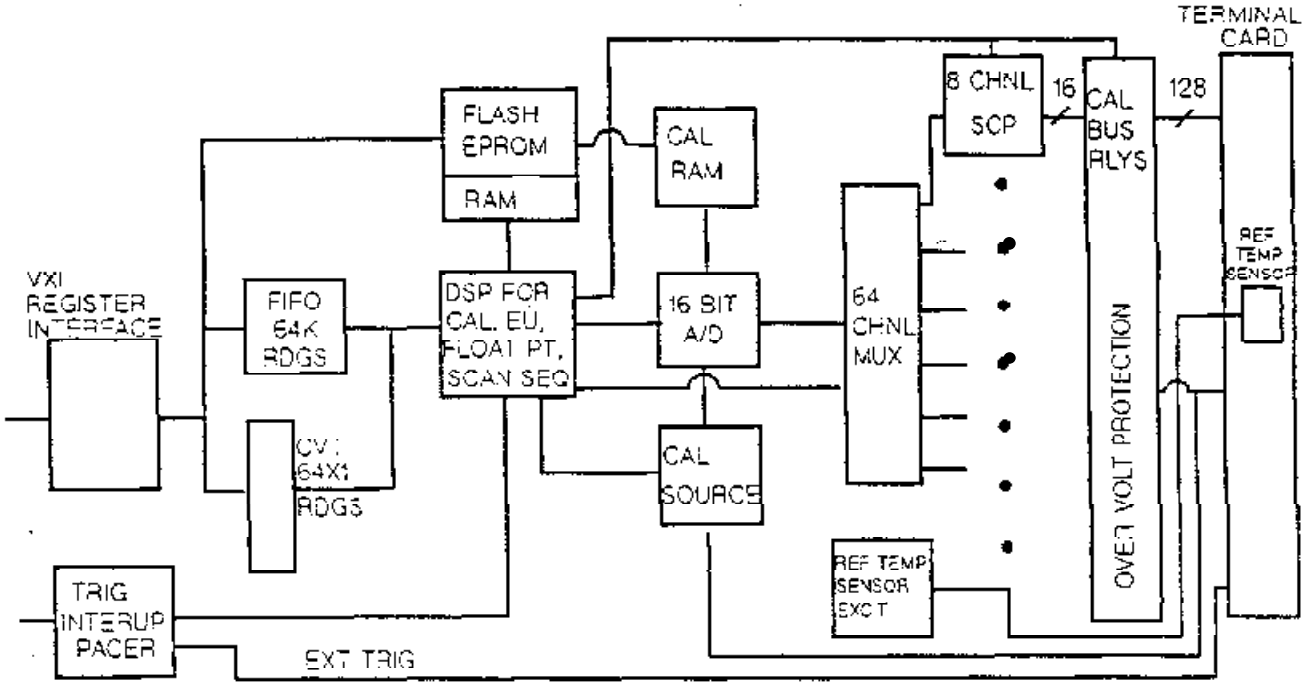
5. Engineering Unit (EU) Conversion at Speed

6. Up to 4 Scan Lists with different scan rates

7. 64 Kreading FIFO in A16 space and 64 register Current Value Table in A24. This allows you to continuously log all channels to disk while also sending all or a selected group of channels to a display, or to update PID loops, etc. The FIFO can be operated in Circular Buffer or Block mode.

8. Autoranging at speed (20 bit settling at 100 kHz)

HP E1413A 64-Channel Scanning A/D



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More E1413A Features & Performance
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9. Individual Channel Gain & Offset Correction at Speed.

10. On Board, Per Channel Calibration Bus & Source. You can measure the internal calibration source at the terminal block. Store a calibration correction constant in the E1413A RAM, and then programatically calibrate all channels. This procedure stores offset and gain correction coefficients for each channel.

11. Programmable Open Channel Detection

12. Flash ROM for fast easy firmware enhancements