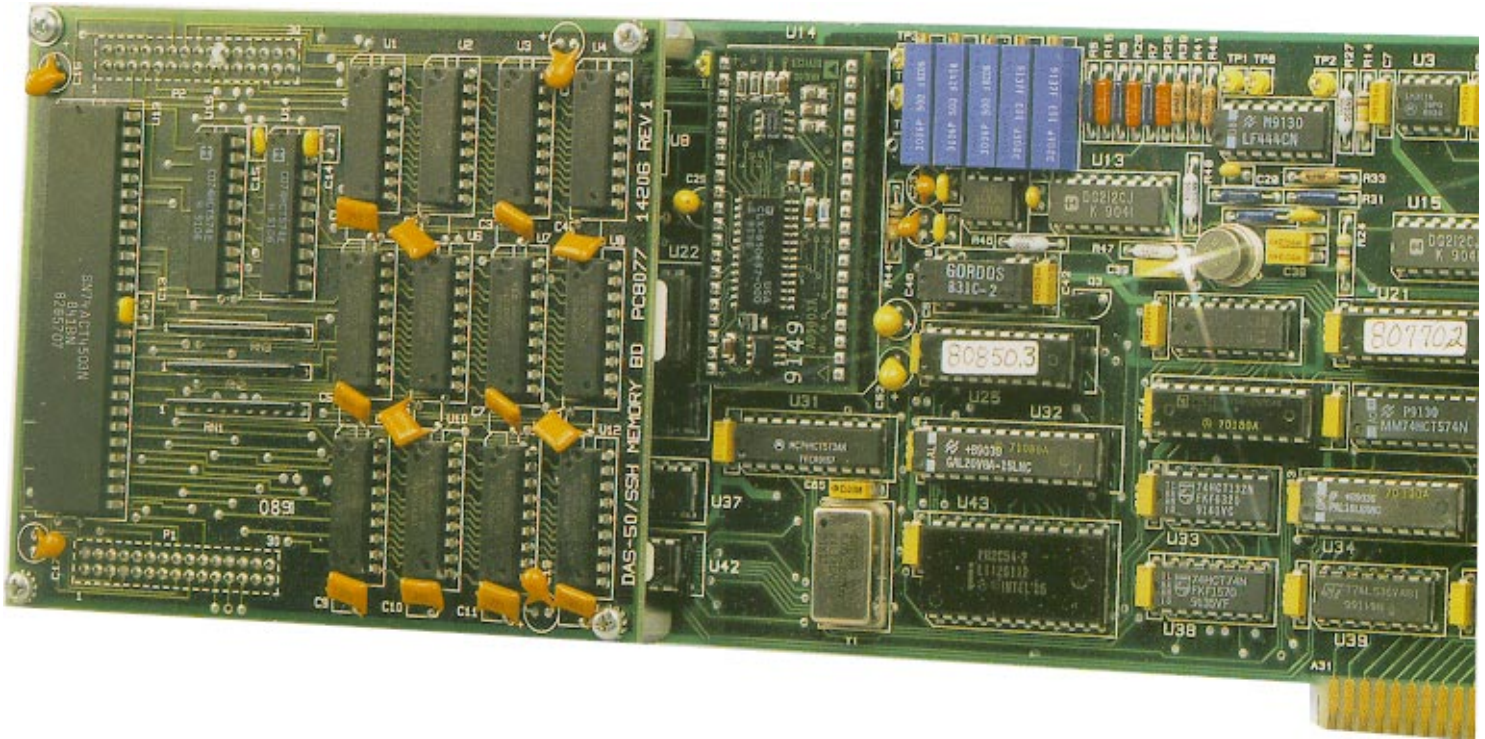# 1 Megasample/Sec Analog Input Boards Optional Simultaneous Sample and Hold

$**2199**
Basic Unit

- ✔ **1-Megasample/Sec Rate at 12-Bit Resolution**
- ✔ **1-Megaword of On-Board Memory**
- ✔ **4 or 8 Channels with Optional Simultaneous Sample and Hold**
- ✔ **Includes Pop Up Control Panel, Data Acquisition and Diagnostics Software**
- ✔ **File I/O and Direct Call Drivers, Optional Windows 3.0 Compatible Drivers**
- ✔ **Ideal for Engine Testing, Vibration, Acoustic, Frequency and Transient Analysis Applications**

For extremely high speed acquisition of data from multiple channels, the DAS-50 and DAS-58 12-bit boards provide a versatile solution. They will sample up to one million samples per second, and can store up to one million samples in on-board memory. This on-board memory guarantees full speed operation of the board regardless of the host computer speed. The DAS-50 has 4 input channels, while the DAS-58 features 8 channels with auto-zero and optional simultaneous sample and hold (SSH) capability. The DAS-58 also has a burst mode, allowing for pseudo-SSH with a 1 µs channel-to-channel skew, but without the added expense of the external SSH-58 simultaneous sample and hold accessory.

The DAS-50/58 can be triggered in one of three ways: by software command, external digital input, or by a level on the analog input of channel 0. The boards also offer three trace modes (a trace is a series of samples based on the input triggers). These modes allow you to capture data before, after or around a specific event or trigger condition. The "post-trigger" mode allows the board to acquire N samples after receiving a trigger. "Trace about trigger" mode continuously converts the analog signal until a trigger is received, and then takes N additional samples. This mode is especially useful when looking for data before and after an event has occured. The "pre-trigger" mode continuously takes
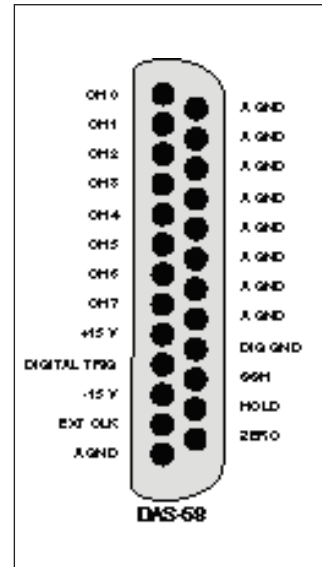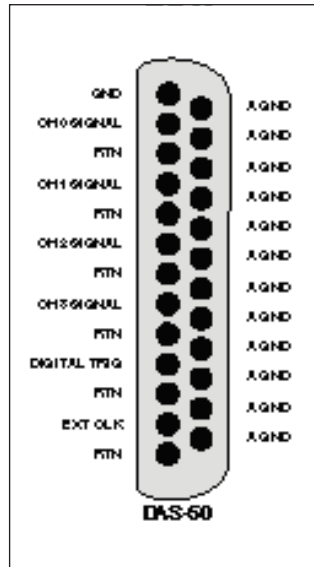
data, and then stops based on a trigger.

The DAS-58 features an auto-zero capability to ensure accurate measurements. Controlled through software, the auto-zero feature disconnects all inputs and applies zero volts to each input. The inputs are measured and a digital to analog converter (DAC) per channel is used to inject a voltage to correct for any offset. The DACs will maintain these levels until the software executes another auto-zero calibration.

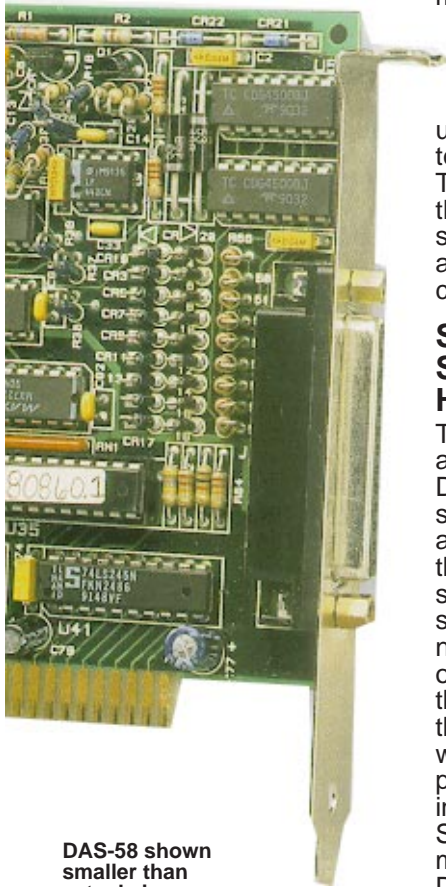DAS-58 shown smaller than actual size

SIMULTANEOUS SAMPLE AND HOLD

The SSH-58 external accessory allows the DAS-58 to operate in a simultaneous sample and hold (SSH) mode. In this mode, up to eight single-ended inputs are sampled within ±20 nanoseconds of each other. Channels 0 through 3 or channels 4 through 7 are sampled with less than 300 picoseconds of inter-channel skew. The SSH-58 uses the burst mode feature of the DAS-58 to burst sample
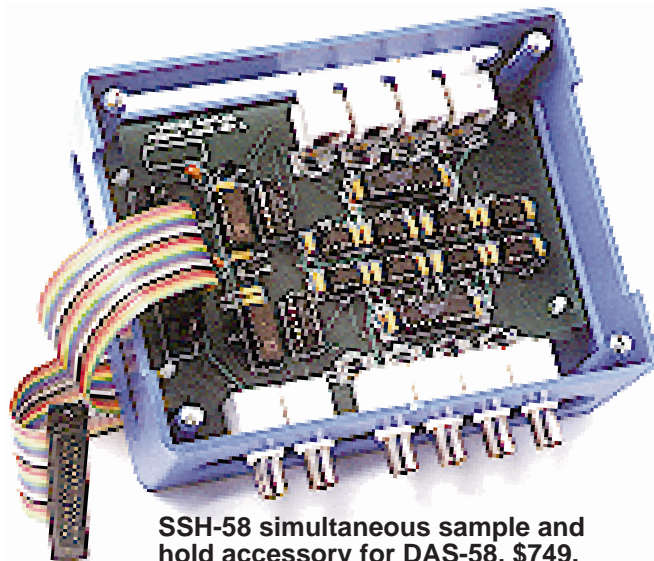

all channels at 1 µs per channel once they have been held. The first clock pulse is used to hold all channels, so the maximum aggregate sample rate for 8 channels is 889 ksamples/second. The DAS-58 automatically performs a zero offset calibration on the SSH-58 when the board is initialized. This helps insure accurate readings. The DAS-58 software automatically checks for the presence of the SSH-58, so support is virtually transparent to the user.

The SSH-58 has a maximum input range of ±10 V. The built-in gain of 1/2 gives a maximum output range of ±5 V. The SSH-58 is housed in a plastic enclosure and it contains BNC connections for all inputs and the external trigger input. The DAS-58 to SSH-58 cable is included. The SSH-58 is powered from the DAS-58, so no external power is required.

D1

ANALOG INPUT AND MULTI-FUNCTION CARDS

SSH-58 simultaneous sample and hold accessory for DAS-58, $749.
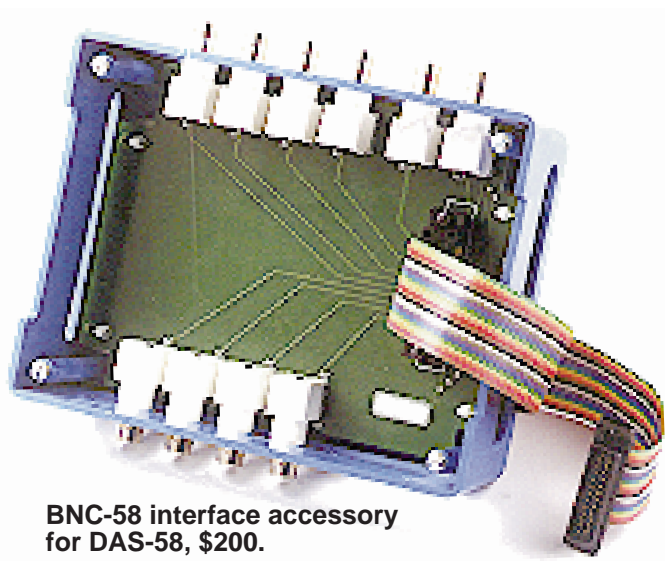
BNC-58 interface accessory for DAS-58, $200.

DAS-50/58 Series
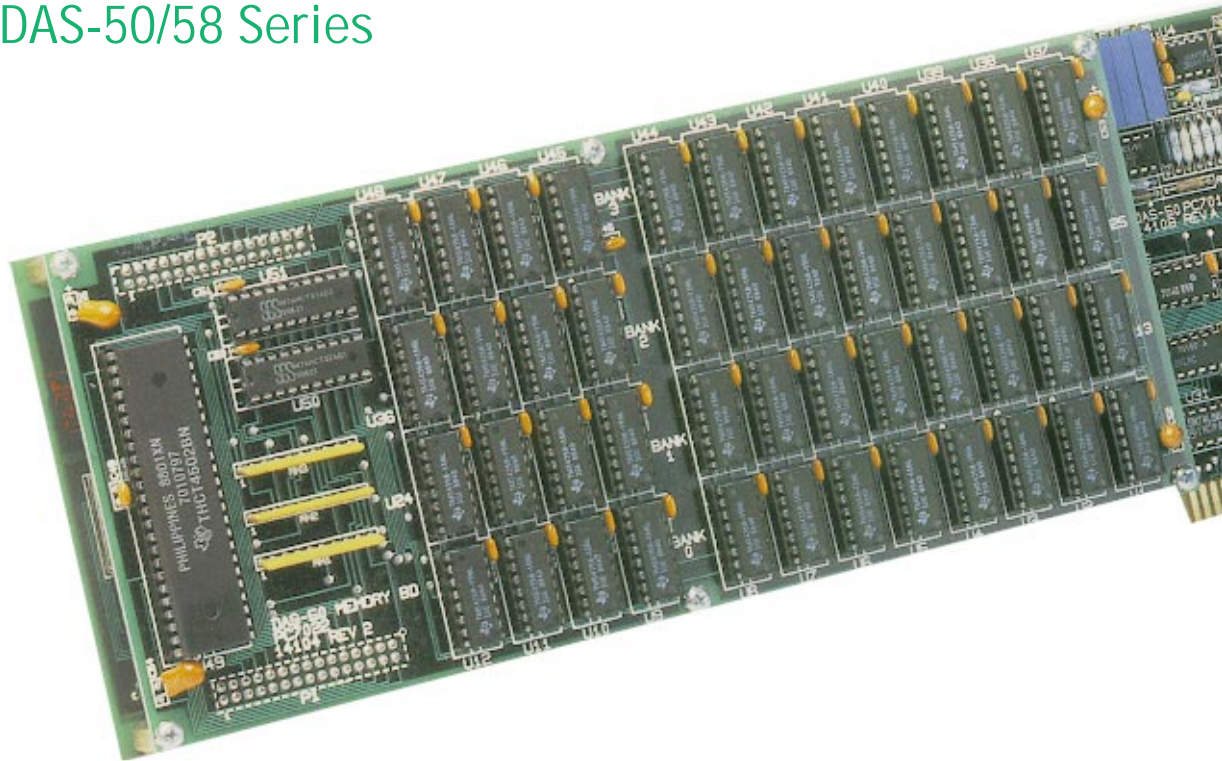

SOFTWARE SUPPORT

DAS-50/58 users can choose between a fully integrated software package (such as SnapMaster for Windows or Easyest LX), or can write a custom program (in BASIC, C, Pascal, etc.). The boards are also supported by a comprehensive set of drivers and programming tools. Two levels of software are available. Provided with each board is the standard software package, which includes a Call Driver (QuickBASIC compatible), pop-up control panel which allows mouse or keyboard control and testing of all I/O functions, installation and configuration program, a variety of example programs which show how to write DAS-50/58 programs, and a calibration utility.

Also available is the Advanced Software Option, which offers additional software capability beyond the standard software supplied with the board. The ASO includes Call Drivers for Pascal and C, File I/O Drivers for all languages and a Windows 3.X compatible Dynamic Link Library (DLL). This allows the user to program in any language that supports the DLL construct. This includes Visual Basic, Microsoft C, Quick C, Borland C and Turbo Pascal for Windows. Example programs for each language is provided.

Specifications

DAS-58 BOARD

INPUT

Channels: 8 single-ended
On-Board Memory: 1 megaword
Ranges: 0 to +5 V, 0 to +10 V, ±2.5 V, ±5 V, ±10 V
Range Selection: software programmable
Maximum Input: ±25 V
Input Impedance: >1 MΩ
Capacitance: 50 pF
Bandwidth: -3 dB, 4.0 MHz (-0.5 dB 500 kHz)
Crosstalk: -62 dB, 500 kHz
Noise: 1.5 LSB rms (all ranges)

CONVERTER

Resolution: 12-bit
Throughput: 1,000,000 samples/second

ACCURACY

Overall: 2 LSB max.
Differential: 1 LSB max.
Integral: 2 LSB max.
Missing Codes: zero guaranteed

TEMPERATURE DRIFT

Offset Drift: 30 ppm/°C
Gain Drift: 30 ppm/°C
Diff. Linearity: 1.5 ppm/°C

DIGITAL INPUTS

External Clock: <0.8 V low input; >2.0 V high input

Digital Trigger: <1.1 V low input; >4.0 V high input
Current: both inputs can source up to 0.25 mA

POWER REQUIREMENTS

+5 V: 1.1 A
+12 V: 0.45 A (0.85 A with SSH-58)
Total Power: 11 Watts typ.

MECHANICAL

I/O slots Required: 1

ENVIRONMENTAL

Operating: 0 to 50°C (32 to 122°F)
Storage: -25 to 85°C (-12 to 185°F)
Humidity: 0 to 90% RH, non-condensing
Weight: 454 g (16 oz)

SSH-58 SSH ACCESSORY

Input Type: 8 channels single-ended
Gain: 0.5 ±0.015%
Max. Input Voltage: ±10 V
Impedance: 10 MΩ, 20 pF
Bandwidth: 1 MHz sampled, 6 MHz bypassed
Crosstalk: -65 dB
Noise: 150 µV rms, dc to 5 MHz
Acquisition Time: < 1 µs
Aperture Time: < 35 ns
Aperture Jitter: 0.1 nsec
Aperture Skew: 300 ps max within channels 0-3 or 4-7; 20 ns max within channels 0-7

DAS-50 shown with BNC-50 interface accessory, $140

CONVERTER
Resolution: 12-bit
Conversion Rate: 1 µs
ACCURACY
Overall: 2 LSB max.
Differential: 1 LSB max.
Integral: 1.5 LSB max.
No Missing Codes: guaranteed
TEMPERATURE DRIFT
Offset Coefficient: 15 ppm/°C
Gain Coefficient: 25 ppm/°C
Diff. Linearity: 1.5 ppm/°C
POWER
+5 V: 2 A typ.
+12 V: 80 mA
Power Consumption: 11 Watts typ.
MECHANICAL
I/O Slots Required: 1
ENVIRONMENTAL
Operating: 0 to 50°C (32 to 122°F)
Storage: -25 to 85°C (-12 to 185°F)
Humidity: 0 to 90% RH, non-condensing
Weight: 585 g (19.5 oz)

Output Droop Rate: <1 µV per µs
Gain Drift: 15 ppm/°C
Non-linearity: ±0.002% typ.
Digital Low: 0.8 V max.
Digital High: 2.4 V min.
Power: ±15 V, 200 mA max.; supplied from DAS-58 board
ENVIRONMENTAL
Operating: 0 to 60°C (32 to 122°F)
Storage: -20 to 70°C (-4 to 158°F)
Humidity: 0 to 95% non-condensing
Dimensions: 17 x 15.5 x 6 cm (6.69" x 6.1" x 2.36")
Weight: 454 g (16 oz)

Specifications
DAS-50 Board
INPUT
Channels: 4, single-ended
On-Board Memory: 1 megaword
Ranges: 0 to +5 V, 0 to +10 V, ±2.5 V, ±5 V, ±10 V
Range Selection: software programmable
Maximum Input: ±25 V (power on or off)
Input Impedance: 100 kΩ
Input Capacitance: 10 pF
Bandwidth (-3 dB): 6 MHz (BW flat within 0.5 dB, dc to 500 kHz)

Channel-to-Channel Signal Isolation: 62 dB, 500 kHz analog input

To Order *(Specify Model Number)*

Model No.	Price	Description
DAS-50/4	**$2199**	1 MHz, 4 channel 12-bit A/D board
DAS-58	2399	1 MHz, 8 channel 12-bit A/D board with burst mode and optional SSH

Accessories

Model No.	Price	Description
SSH-58	**$749**	8-channel Simultaneous Sample and Hold accessory for DAS-58; includes cable
ASO-50	99	Advanced Software Option for the DAS-50
ASO-58	99	Advanced Software Option for the DAS-58
BNC-50	140	DAS-50 to BNC interface accessory; includes cable
BNC-58	200	DAS-58 to BNC interface accessory; includes cable
STA-U	120	Universal screw terminal box (recommended for users not using the BNC-50, SSH-58 or BNC-58); requires cable
K-1800	30	Interconnection cable (DAS-50 to STA-U or DAS-58 to STA-U)
TCP-MCB	15	BNC to micro-clip adaptor

Boards come with software supplied on 3 1/2 inch disks, plus complete operator's manual.
Ordering Example: *DAS-50/4 4-channel A/D board with BNC-50 DAS-50 to BNC interface accessory (includes cable) and ASO-50 advanced software, $2199 + 140 + 99 =* ***$2438***
Ordering Example: *DAS-58 A/D board with SSH-58 simultaneous sample and hold accessory (includes cable) and ASO-58 advanced software, $2399 + 749 + 99 =* ***$3247***